fueloil & oil heat

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1954

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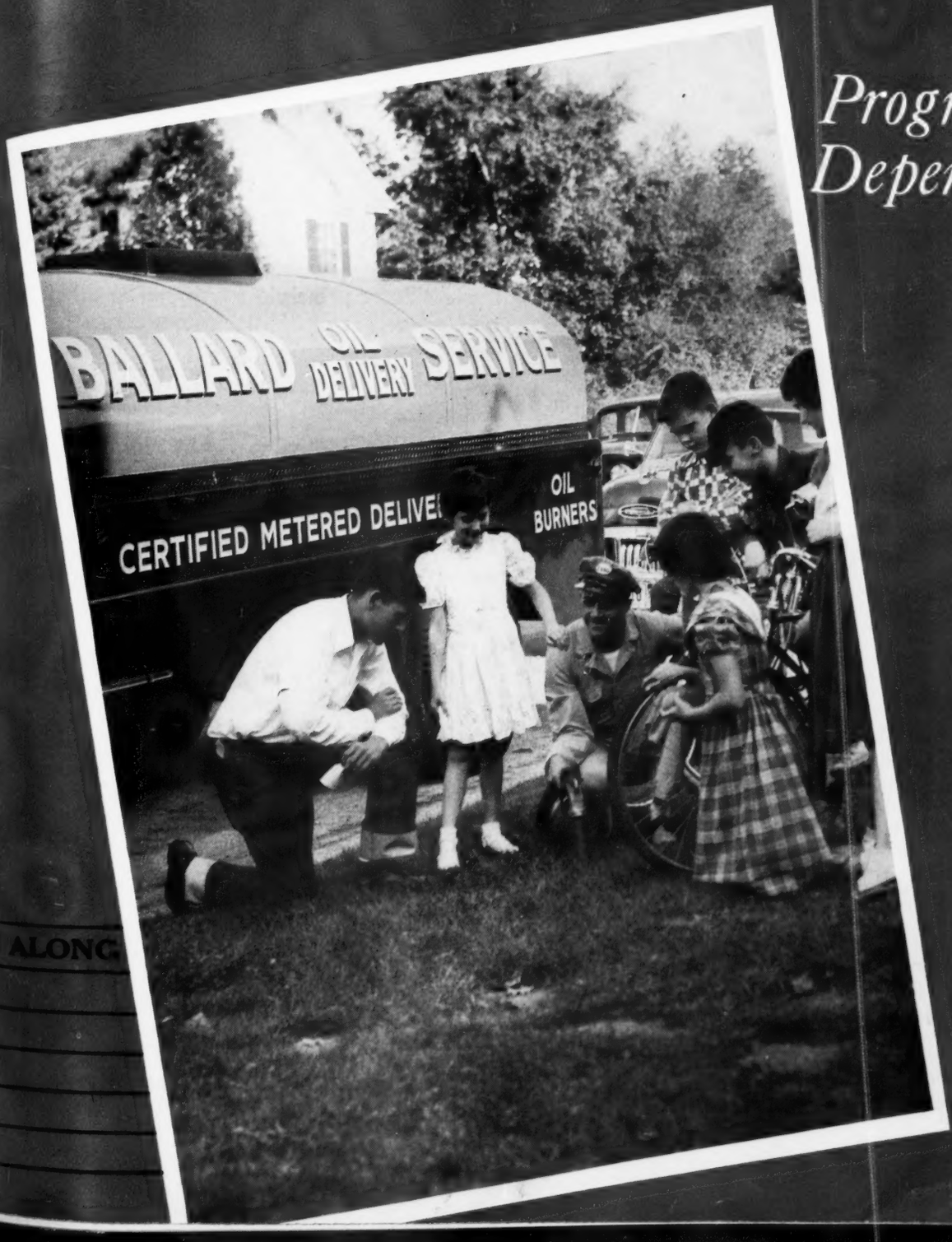

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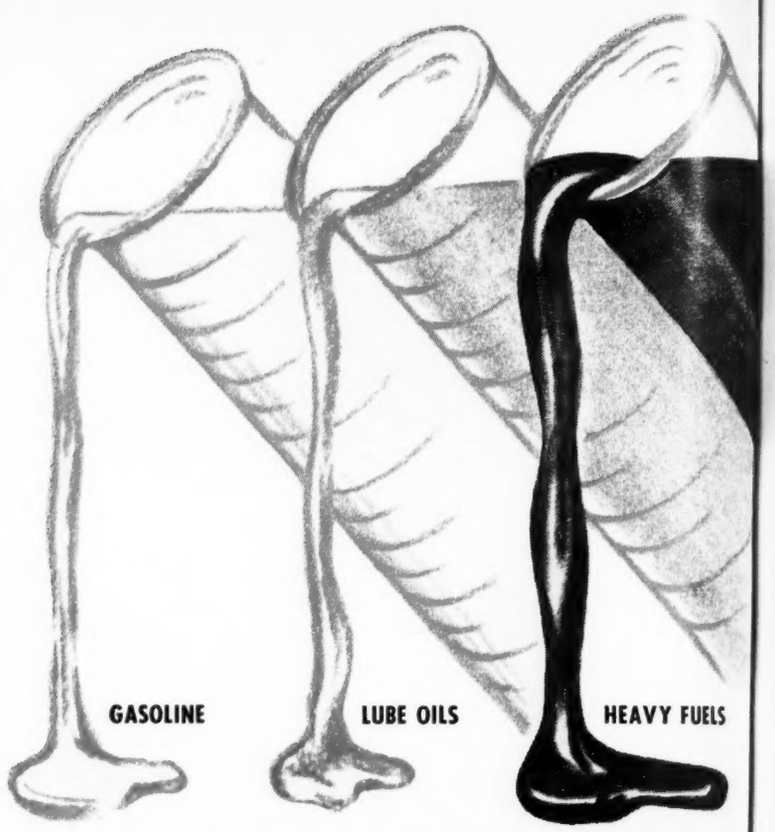

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REPRESENTATIVES WITH STOCKS AND SERVICE FACILITIES IN ALL PRINCIPAL CITIES

APRIL fueloil & oilheat 1954

VOLUME 13 NUMBER 4

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Among other things . . .

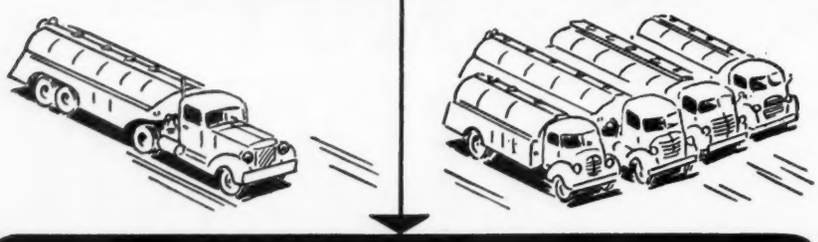
The article on "Training and grading Servicemen" tells how Ed Hacker at Ballard Oil & Equipment in Portland keeps his eye on his help. All of which ties in with the cover picture of one of Hacker's fueloil drivers hard at work under the searching glances of an audience of neighborhood children.

Ray Kraemer opens the parade of features with his explanation of fueloil margins and Schulz winds up his controls series, covering Detroit and Crise.

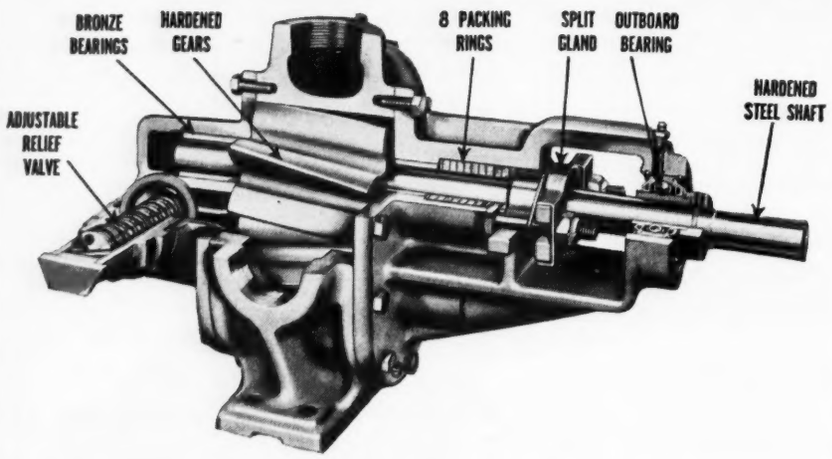
On page 64 begins an interesting discussion of LP gas sales by fueloil dealers. This product, the article shows, because of the ease with which it fits into automatic delivery schedules, is a natural addition to fueloil distribution.

The revision upward of oilburner sales in 1953 shows that we were wrong with our original estimate, but happily we erred on the low side. There's a state count of oilburners operating, along with the revision, on page 73.

ONE truck or a FLEET



you'll gain more with ROPER 3600 SERIES PUMPS



In seven capacities from 40 to 300 G.P.M.

Easy to install and operate . . . dependable to reduce down-time, you'll find the Roper Series 3600 Truck Pump a worthwhile investment in necessary equipment. This is a complete unit, ready for hook-up on any type of drive, and for all conditions of piping and mounting.

- High lead bronze bearings — deep packing box with 8 split ring packings.
- Pumping gears run smoothly in axial hydraulic balance.
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Name.....
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Rotary Pumps

Names in the News

Andrew F. Ward has been appointed staff assistant to M. M. Lawler, vice president of the Air Conditioning and Refrigeration Division, Worthington Corp. Before joining Worthington, Ward was general sales manager of the Williams Division, Eureka Williams Corp., Bloomington, Ill. He also served in various sales capacities with Airtemp. His headquarters will be in Harrison, N. J.

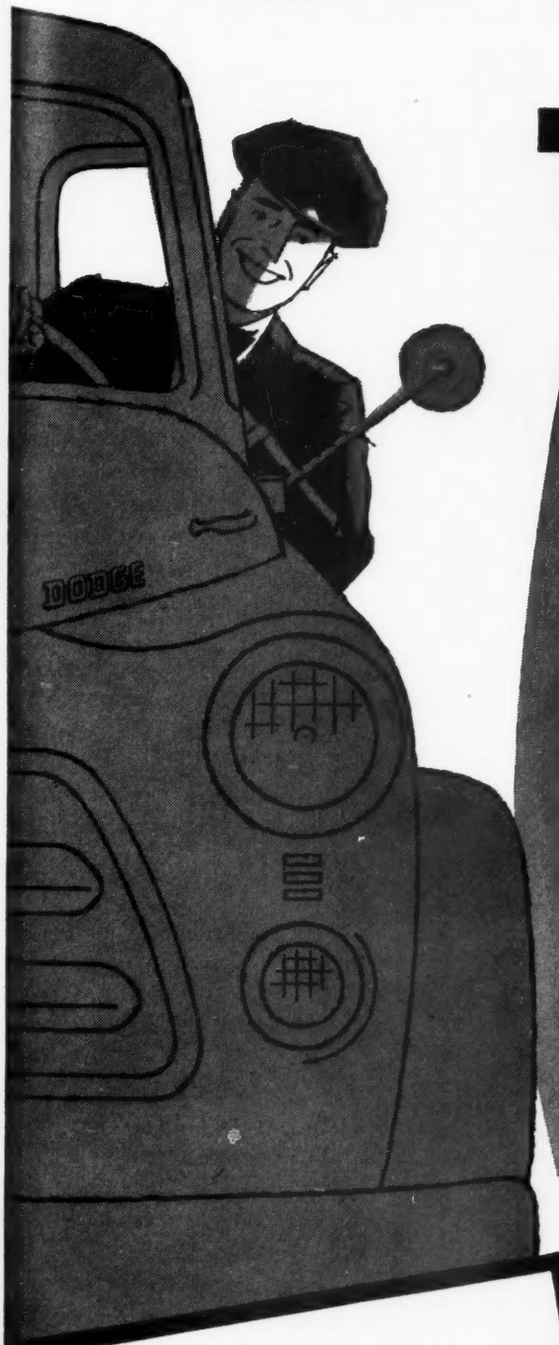
Bernard Spiegel has been elected a vice president and director, Wrentham Co., New Haven, Conn. He will also be assistant general manager of the company.

Julian F. Warren has been named director of advertising and sales promotion of The Coleman Co., Wichita, Kan. He was formerly merchandise manager and succeeds Tom Gibbons, who died January 24. *Leland C. Ginn*, who recently joined Coleman as assistant to the sales manager of the Heating and Airconditioning Division, has been promoted to merchandise manager. Before joining Coleman,

Warren

Ginn

New DODGE "Job-Rated" TRUCKS



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NEW! Roomiest Cab! Wide, 3-man cab with easy-chair seat. 951 sq. in. windshield and best all-around visibility of any make.

NEW! Sharpest Turning! 39° turning angle, short wheelbase design for top maneuverability. Easiest handling trucks there are!

NEW! V-8's and Sixes! Most powerful V-8's in popular field—133 to 172 h.p. Plus famous Dodge Sixes. 7 engines in all.

NEW! Low-Built Lines! Built low for better road stability, easier loading, ground-hugging good looks. Lower step for easier cab entry.

ALL ADD UP TO

"A better deal for the man at the wheel"

All-new Dodge trucks

offer a better deal in low operating and upkeep costs, too . . . are priced with the lowest. Make it a point to call your friendly Dodge dealer—or drop in to see him soon. You'll like these new trucks!

See "Break The Bank" with Bert Parks on TV (ABC, Sundays).
Hear "The Roy Rogers Show" on radio (NBC, Thursdays).
See "Make Room For Daddy" with Danny Thomas on TV (ABC, Tuesdays).
Enter the Dodge 40th Anniversary All America Contest. See your dealer.

fueloil & oilheat

Warren was sales manager of Delco Appliance Division of General Motors Corp.

D. P. Paiste, manager of the Felt and Fibrous products department since '51, has been named assistant general sales manager of the Industrial Division, Armstrong Cork Co., Lancaster, Pa. *C. T. Potts* replaces Paiste in the Felt and Fibrous products department.

Frank Gall has been named sales promotion manager, Bell & Gossett Co., Morton Grove, Ill. A graduate of the Illinois Institute of Technology, Gall joined the company in 1938. Since 1945 most of his activity has been in the sales departments. He will handle the education program of the company, and will be head-master of the B & G Little Red Schoolhouse, a school designed to teach the latest in heating and cooling design.

William B. Firman has been appointed manager of domestic sales Powermaster, Orr & Sembower, Inc., Reading, Pa. He has been with the company for the past seven years, and has served as sales supervisor, service manager and assistant sales manager. A graduate of Cornell University, he served in the Navy during World War II.

E. F. Dill has been promoted to manager of the Seattle sales office, Minneapolis-Honeywell Regulator Co. He had been branch commercial sales manager in the San Francisco office. Dill succeeds *W. G. Warrington* who has resigned to become vice president and general manager of Rossoe Manufacturing Co., Seattle. *R. J. Conner* will manage the San Francisco office.

Andrew W. Hughes has been named Eastern Region manager in charge of the Rheem Manufacturing Company's manufacturing and marketing activities on the eastern seaboard. He will also be in charge of the Rheem plant operations in Linden and Burlington, N. J., Philadelphia, Pa., and Sparrows Point, Md. Hughes has been with the company since 1943.

H. L. McNally is now a manufacturers' sales representative for Delavan Manufacturing Co., Dongan Electric Manufacturing Co., Commercial Filters Corp. Dielectric Products Co., Inc., Guardian Products Corp., and Monogram Products Co., Inc. in Iowa, Nebraska, Minnesota, North and South Dakota and Western Illlinois. For the past seven years, McNally has been selling most of these same lines while employed by Delavan Engineering Co., Des Moines.

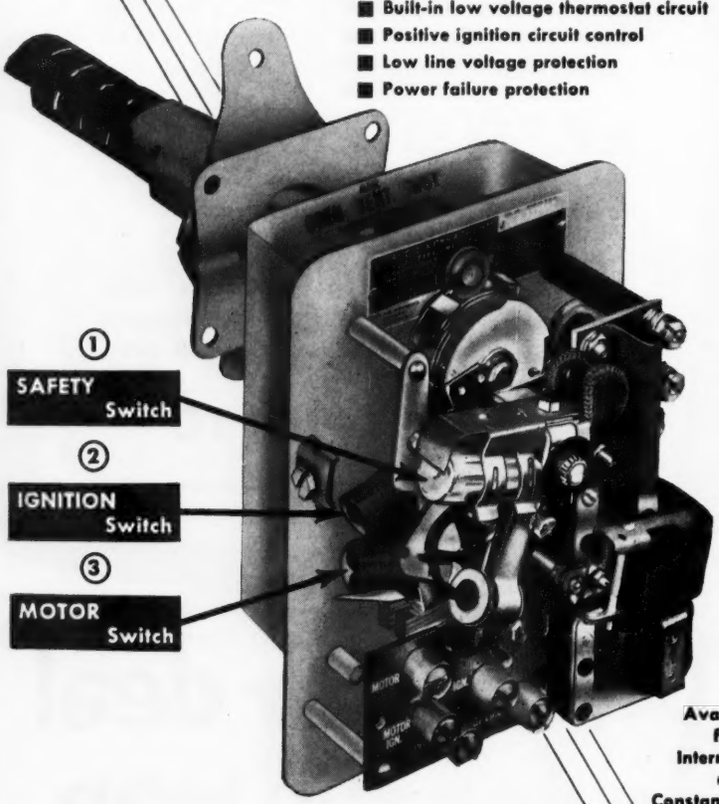
E. T. Selig, Jr., has been appointed director of engineering, The Burnham Corp., Boiler Division, Irvington, N. Y. Before joining Burnham, Selig was manager of the product engineering department, Richmond Radiator Co. Prior to that he was director of engineering for Rybolt Heater Co.

(*Please turn to page 154*)

VISIBLE OPERATION
ONLY 3 ELECTRICAL CONTACTS

MERCOID PYRATHERM®
SAFETY AND IGNITION CONTROL

- Protection against flame or ignition failure
- Built-in low voltage thermostat circuit
- Positive ignition circuit control
- Low line voltage protection
- Power failure protection



The use of Mercoid sealed mercury contacts makes it simple to check the operating sequence of a Mercoid Pyratherm. Furthermore, these switches are immune to dust, dirt, grease or corrosion. There are no contacts to stick, chatter, arc or burn.

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AT THE SHOW!!!

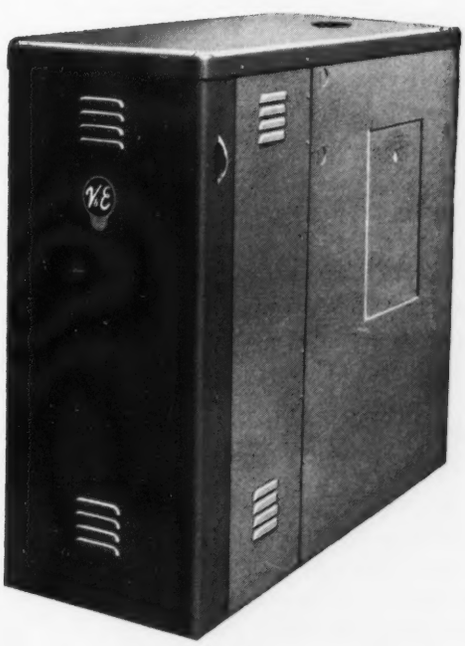
O.H.I. EXPOSITION

COMMERCIAL MUSEUM — PHILADELPHIA

MAY 16-20

See V&E COMPLETE LINE

The Beautiful New Jackets of the **HORIZONTAL BOILERS**
and the New Models in the **WALL FLAME** *Series*
BOILER®



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Editorial Leaks

IN THE FEATURE section of this issue is a report on several speeches made at the Pacific Coast OHI convention in Portland last month. Not reported in the group is the editor's talk so we'll catch a couple of the points here.

Noting that fueloil margins in Portland were lower than Seattle and some other larger cities in the Northwest, the question arose as to what is a suitable margin for No. 2 fueloil.

One man would say that a good profit is 10% on his gross billing, while another may be happy with a 10% return on his capital investment. So we don't try to set up a standard, but we can readily show what others are doing . . . how other parts of the country are getting along.

The best simple index of the cost of doing business in any specific market is the base wage rate of truck drivers. We compared the operations of several hundred companies and proved that the relationship between the drivers' wage and the total cost of doing business is almost constant. Where driver wages are high, you'll find that over a period of time office help is high, garage bills are right in line, property values and rents are high.

So what is the connection? At the start of this year the average driver wage rate in the country was $1.83 an hour. The average margin on No. 2 oil was 3.24¢ a gallon. The average profit was .77¢ a gallon, before corporate income taxes.

At what point, then, would you have an equal chance to earn that average net profit of .77¢ a gallon?

Notice that the average margin in cents per gallon was just 1.77 times the average wage rate in dollars per hour.

The base wage rate in Portland is $1.97 per hour. Multiply this by 1.77 and you get an indicated margin of 3.49¢. On that basis the fueloil distributors in that city would have an equal or average chance to earn .77¢ per gallon.

But the Portland margin is said to average only 3.25¢ so it is a quarter cent below what we would call normal for the market's cost conditions.

It is interesting what a difference a fractional cent can make. In Seattle where margins generally are a half cent higher than in Portland, the competitive atmosphere is noticeably different.

The state of Washington, sparked by Seattle, is conducting the most effective cooperative advertising campaign for oilheating in the country. The oil men are subscribing 1/20¢ a gallon for this and they've been doing it now for three years.

Streets are full of attractive billboards glorifying oil heat. It's going to be much harder for natural gas when it comes to get a foothold in Washington than in Oregon. This is not because Oregon marketers are not as good operators but rather because a subnormal margin makes them overcautious about spending even a little for promotion.

In case you remember that a year ago we were talking about multiplying the driver wage rate by 1.88 to arrive at the average margin, while today it's multiplied by 1.77, each was correct for its time. During the year 1953 the average driver wage rate increased considerably more than fueloil margins. This caused the average gallon profit to drop from .85¢ to .77¢. So the multiplying figure of 1.77 is correct for the first of this year . . . to arrive at the average operating condition.

ANOTHER PRIME topic of conversation and one which was discussed by the editor at the meeting is what to do about selling "standby" fueloil to industries that use gas in summer months.

Throughout the country nothing has ever been done about this to our knowledge, but Pacific Northwest oil men are different in some ways.

The big trouble with standby fuel arrangements is not that they take away some of our heavy oil industrial sales. That is bad, but they have a worse effect on our more profitable light oil sales for home heating.

Notice that when a gas utility makes a supply contract with the pipeline it can only get the lowest rates by taking about the same amount of gas each month.

That means that it can't take on much home heating business unless it has a summer industrial load to balance it. This industrial load, however, when sold at the low rates, is interruptible on a few minutes notice when the gas is needed for homes.

That's where the standby comes in. An industry can't get an interruptible low-rate gas deal unless it has a standby fuel available to turn on at a moment's notice.

So the gas people not only take away a lot of our industrial oil sales, but they add insult to injury by having us stand by to supply trivial amounts at their convenience, while they shift over into home heating.

There could be no gas competition for our home heating markets if we as an industry refused to be made such suckers by the standby route!

Utopia and the Millenium are both future. But since the boys in the Northwest have aroused themselves to real concern over the problem, and that well in advance of the coming of natural gas, you can look for some interesting and imaginative action.

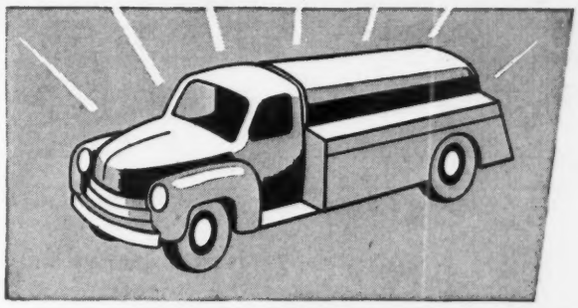
THE COMING OF natural gas to the Northwest, as the promoters expect by next year, coincides with a rather difficult situation on burner service costs. Rates for good service men are in the $3.00 per hour range, and in Tacoma the rate is $3.13.

The only apparent way to pay such rates without overloading the customer is to go on a preventive maintenance basis where one man is made responsible for, say 700, homes as they do in Buffalo . . . so his time is fully utilized without waste.

The present emergency call basis, with $6.00 minimums in most instances, will favor gas too generously.

Bob Gray

it's like having the free use of another truck...



when you equip all old-customer tanks with VENTALARM

WHISTLING TANK FILL SIGNAL

You find that VENTALARM Signal delivery saves you close to two hours per day, per man-truck. On a four-truck basis, that gives you time for at least 20 more deliveries per day . . . or 120 more deliveries per week! And all this with the same manpower and equipment that you have right now.

The cost to you?

Just a modest VENTALARM Signal investment that can be written off as a one-year expense. In fact, the signals can save you up to 30% of delivery costs. So they pay for themselves in the first season!

Your decision now to install VENTALARM Signal (Model LC) on *all* old-customer tanks can prove to be the best profit-building move that you will make this year. And you will be amazed at the customer goodwill that will result from your VENTALARM Signal guarantee of clean, convenient delivery.

Over 4,500 major and independent fuel oil dealers know this to be true from experience.

Write for the full story.

Model LC VENTALARM Signal is easily installed on old tanks. A slip-fit, quick compression fitting with bayonet lock eliminates any pipe threading. Takes only 15 to 20 minutes.

SCULLY SIGNAL COMPANY

NOW 174 Green St., Melrose 76, Mass.

Canadian Licensee: EMPIRE BRASS MFG. CO., LTD., London, Ontario

For new installations, specify Model LA VENTALARM Signal or the "two-in-one" money-saver VENTALARM GAUGE.

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Contact your REGULAR SUPPLY HOUSE for VENTALARM® Signal in a variety of sizes.

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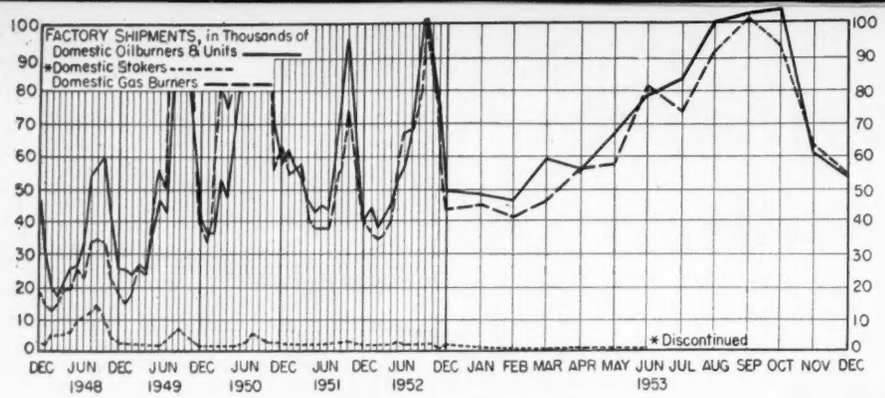
Combination Audible Signal and Visible Gauge

SCULLY® GAUGE
Easy-to-See Separate Gauge Sturdy, Economical

SCULLY® SPOUT
Thick Walled Brass with Protective Tapered End

FASFILL® CONNECTOR
Portable Connection for Gun and Fill Pipes of all sizes

OHI


FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
*Domestic Stokers
Domestic Gas Burners
* Discontinued
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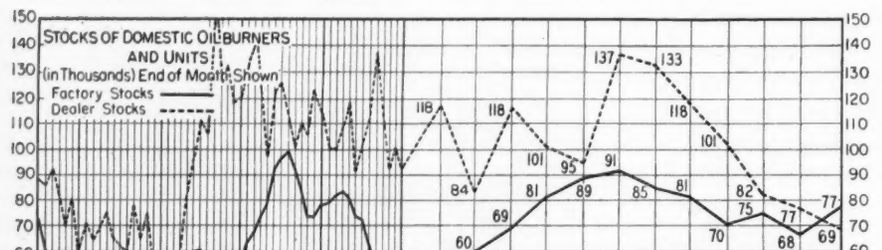
1948 1949 1950 1951 1952 1953

Shipments of Oilburners and Units

Adjusted to include manufacturers other than the 145 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	DECEMBER			TWELVE MONTHS		
	1953	1952	Percent Change	1953	1952	Percent Change
Conversion	27,665	36,148	— 23.5	571,691	531,357	+ 7.6
Boiler Units	3,883	4,922	— 21.1	70,294	67,208	+ 4.6
Furnace Units	13,132	11,214	+ 17.1	189,845	184,375	+ 3.0
All Domestic	44,680	52,284	— 14.5	831,830	782,940	+ 6.2
Commercial	2,807	3,760	— 25.3	41,940	37,470	+ 11.9
Total	47,487	56,044	— 15.3	873,771	820,410	+ 6.5


STOCKS OF DOMESTIC OILBURNERS
AND UNITS
(in Thousands) End of Month Shown
Factory Stocks
Dealer Stocks
JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1948 1949 1950 1951 1952 1953

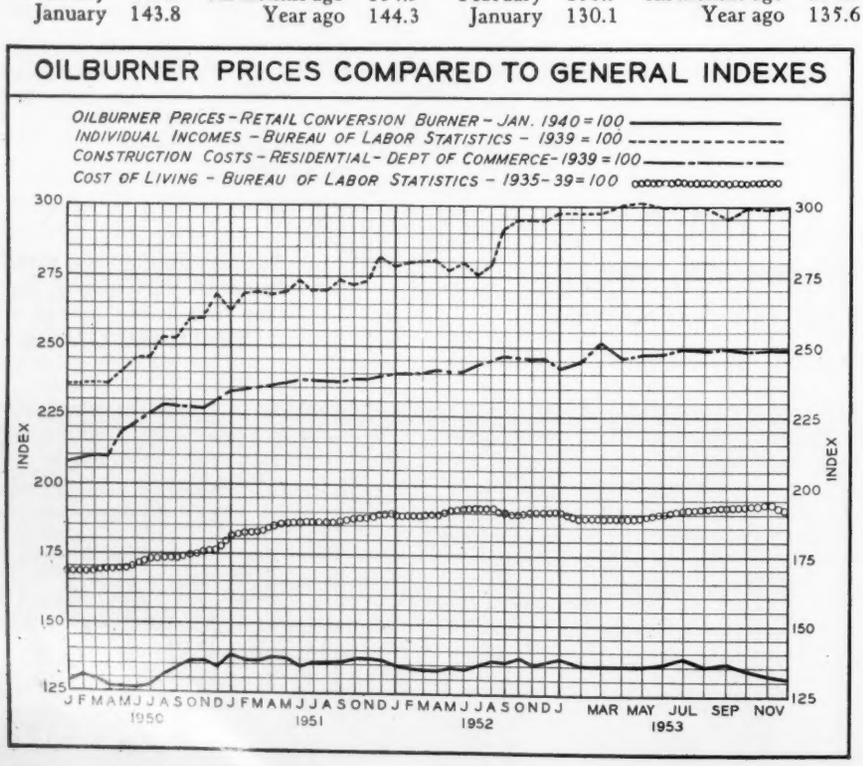
January Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
February	$322	$700	$617
January	323	707	625

Price Index: Conversion Burners: January 1940 is 100%

	WHOLESALE				RETAIL		
February	143.2	Six months ago	134.9	February	130.9	Six months ago	134.9
January	143.8	Year ago	144.3	January	130.1	Year ago	135.6

OILBURNER PRICES COMPARED TO GENERAL INDEXES


OILBURNER PRICES - RETAIL CONVERSION BURNER - JAN. 1940 = 100
INDIVIDUAL INCOMES - BUREAU OF LABOR STATISTICS - 1939 = 100
CONSTRUCTION COSTS - RESIDENTIAL - DEPT OF COMMERCE - 1939 = 100
COST OF LIVING - BUREAU OF LABOR STATISTICS - 1935-39 = 100
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1950 1951 1952 1953

Oilheating Trends

FEBRUARY continued the favorable trend for oilheating installations in 1954. Estimated installations of domestic oilburners and units during the month were 35,148 or nearly 16% above the 30,364 installed in the same month last year. The total for two months was 82,696 while a year ago it had been 71,799.

The February installations were divided: New Homes, 12,720; Replacements of old oilburners, 5,440; Conversions from other fuels, 16,988.

BURNER STOCKS: At the end of February dealers had on hand approximately 87,574 domestic oilburners and units which compares with 90,824 a month earlier and with 83,780 at the end of February last year. The three figures are close enough together to indicate a rather settled state of industry thinking for Mid-winter.

The February 28 stocks were divided: Conversion burners, 50,615; Boiler-burner units, 19,196; Furnace burner units, 17,763.

Factory stocks on December 31, the latest available data, were 76,755 compared with 47,827 a year earlier. This higher level is probably fortunate in view of better than expected installations so far this year. On the other hand it may cause actual factory shipments in 1954 to be lower than those of the previous year while actual installations are expected to be about the same.

TANK STOCKS: At the close of February stocks of consumer tanks in dealer hands were approximately 57,349, substantially up from the 49,071 a month earlier, and indicating that the

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TANK VENTS

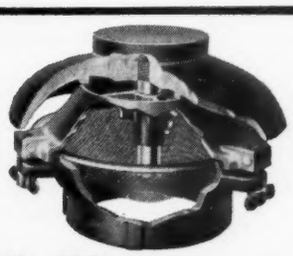
There's a Vapor-Saving OPW Tank Vent for every purpose. They are your INVESTMENT against high volatile vapor loss due to product expansion and temperature variation. Weighted to specifications, they trap and hold vapors and release only at set pressures, which insure maximum protection and dollar dividends. Double mesh screen . . . readily accessible for inspection prevents flame from following vapor into tank maintains bulk storage safety at the highest level.

OPW No. 95—precision machined, product engineered for lifetime use, characterizes the rugged, simple construction common to all OPW Tank Vents. Available: 2" - 3" - 4" - 6" - 10"

Send for the OPW Tank Venting and Emergency Relief Recommendation Chart!

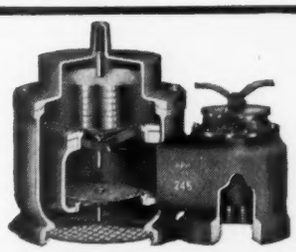
OPW MANUFACTURES VENTS FOR ALL SIZES and TYPES OF TANKS

Small Home-Storage Tanks | **Farm Skid Tanks** | **Under-ground Storage Tanks** | **Above-ground Storage Tanks**



No. 209

Emergency escapement vent, for relief of pressure only. Used in conjunction with vacuum vents.



No. 245

Combination pressure, vacuum vent. 4", vacuum ½ ounce-pressure, 2 oz. to 2 lbs. 6", vacuum ¼ ounce-pressure, 1½ oz. to 1 lb.

OPW CORPORATION FOR HANDLING HAZARDOUS LIQUIDS
OPW
VALVES • FITTINGS • ASSEMBLIES
CINCINNATI 25, OHIO

OPW CORPORATION

2737 Colerain Ave. • Cincinnati 25, Ohio

dealers are feeling comfortable about their requirements in early months. A year ago these stocks were 83,081. Just why the dealers have let them drop while holding their burner stocks about the same level is slightly mysterious. Perhaps it is because they find less incentive to buy tanks in quantities. In other words they are always freely available when needed.

The March 1 tank stocks were divided: 220-275 gallon, 50,711, 550-675 gallon, 4,441; 1,000 gallons or larger, 2,197.

The average price paid by dealers in February for the 275 gallon size was down to $31 and this compared with an average of $33 in the two previous months. By sections of the country the February average was: New England, $26; Mid-Atlantic, $41; Midwest, $28; Pacific Northwest, $42.

PHILADELPHIA EXPOSITION: The reporting dealers were asked a number of questions about national oilheating expositions largely in anticipation of the big May Philadelphia show.

First a check was made on how many expositions of this type they have attended since the close of World War II. Six out of each seven dealers had attended one or more of them. One out of each seven has attended all of them. The average of the entire reporting group is that they had attended three out of the six expositions that the industry has held during that period. In two other years since the end of the war there have been conventions when we did not have an exposition but we are talking only about the expositions.

There is considerable geographic difference. Those reporting from New England and from the Midwest attended an average of three expositions; those from the Mid-Atlantic states four.

When they were asked if they felt that they got their money's worth considering the time and expense involved only 6% of the dealers were disappointed and said that the show was not worth the trip. The other 94% who did get their money's worth certainly constitute an overwhelming endorsement. Bear in mind that the dealers making these reports know that they are confidential and that no person will ever recognize them as individuals, so there was no point in voting other than exactly as they felt. It was interesting to notice that some of the men who voted that they did not get their money's worth are nevertheless planning to go this year.

Then we asked the group what they consider the principal benefits to them in attending these expositions. We listed five of the more commonly recognized benefits and asked them to vote one to five in what they considered

Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
February		2 MONTHS			February		2 MONTHS	
1954	1953	1954	1953		1954	1953	1954	1953
11	20	20	38	Albany, N. Y.	..	..	..	..
46	99	131	251	Baltimore, Md.	71	559	380	928
..	..	..	..	Binghamton, N. Y.	4	6	7	8
..	..	..	..	Bloomfield, N. J.	8	7	11	9
..	..	..	..	Boston, Mass.	26	16	50	33
69	99	156	191	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	23	18	43	43
29	8	47	38	Columbus, O.	..	..	..	..
..	..	..	..	Des Moines, Ia.	401	174	693	497
..	194	..	..	Detroit, Mich.	195	194	377	340
12	21	50	53	Elizabeth, N. J.	3	4	8	7
22	24	53	64	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	22	32	35	48
..	..	..	..	Hackensack, N. J.	7	7	8	13
..	126	..	270	Hartford, Conn.	..	..	..	..
..	..	..	..	Hudson County, N. J.	..	..	..	..
15	27	25	38	Irvington, N. J.	1	4	1	11
..	..	..	..	Lynn, Mass.	7	7	12	12
33	32	77	79	Meriden, Conn.	..	..	..	..
409	353	787	700	Milwaukee, Wisc.	138	117	265	236
14	42	40	87	Minneapolis, Minn.	41	43	62	67
6	13	16	19	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	3	2	3	4
19	23	28	43	Mt. Vernon, N. Y.	..	..	..	..
58	75	115	166	Newark, N. J.	..	..	..	..
40	63	85	150	New Bedford, Mass.	..	..	..	..
20	21	56	68	New Haven, Conn.	..	..	..	..
..	..	..	..	New Orleans, La.	..	..	..	..
20	12	34	25	New Rochelle, N. Y.	15	36	25	52
..	..	..	..	New York City (Total)	..	..	..	..
..	..	..	..	Brooklyn-Queens	..	..	..	..
..	523	..	1075	Manhattan, Bronx, Rchd	..	..	..	..
57	76	94	151	Norfolk, Va.	26	44	64	127
..	..	..	..	Oakland, Calif.	..	..	..	..
21	25	..	90	Omaha, Nebraska	60	52	..	75
3	8	11	16	Orange, N. J.	0	4	1	8
2	3	7	13	Passaic, N. J.	..	..	..	..
..	21	..	45	Paterson, N. J.	..	12	..	22
..	258	..	733	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	6	11	16	17
30	27	67	83	Portland, Me.	5	3	11	7
206	209	385	423	Portland, Ore.	106	167	207	298
5	11	27	30	Poughkeepsie, N. Y.	..	..	..	..
..	99	..	177	Providence, R. I.	11	10	18	24
..	..	..	..	Reading, Pa.	5	5	6	11
24	17	53	73	Richmond, Va.	37	60	67	127
19	13	74	64	Roanoke, Va.	..	..	..	..
54	97	145	240	Rochester, N. Y.	..	..	..	..
5	22	12	32	Rockville Center, N. Y.	7	4	12	11
28	11	50	47	Salem, Mass.	1	9	2	14
83	83	223	180	St. Louis, Mo.	37	27	68	38
..	20	..	66	St. Paul, Minn.	69	36	103	68
10	9	35	29	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	159	110	294	202
120	..	239	..	Spokane, Wash.	..	..	..	..
..	..	..	..	Springfield, Mass.	50	30	76	60
31	41	57	93	Stamford, Conn.	..	..	..	..
..	3	..	9	Syracuse, N. Y.	..	38	..	75
..	..	..	..	Trenton, N. J.	4	6	5	17
..	..	..	..	Utica, N. Y.	3	7	6	9
47	44	93	120	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	14	19	21	33
11	12	27	28	White Plains, N. Y.	5	6	15	15
30	74	71	140	Wilmington, Del.	0	7	1	9
102	81	189	205	Worcester, Mass.	..	..	..	..
20	59	61	164	Yonkers, N. Y.	..	..	..	..
1508	1759	3144	3936	*Totals*	1570	1843	2973	3403
—14.3	..	—20.1	..	*Percent Change*	—14.8	..	—12.7	..

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

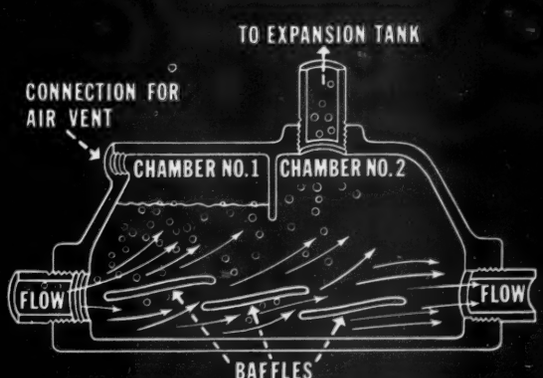
AIR-SCOOP SALES *still* ZOOMING...

after Two Years Steady Climb!

Contractors Keep Buying Because—

IT STOPS AIR NOISE!

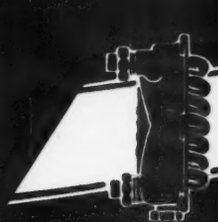
in Hot Water Heating Systems



Scoops air from water before it circulates through main...

Air from chamber number 1 is removed by air vent. Air from chamber number 2 goes to expansion tank. When tank is filled, air backs down and is removed through chamber number 1.

Sizes ¾"-1"-1¼"-1½"-2"-2½"



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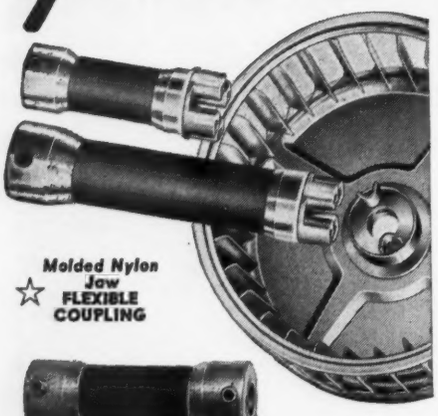
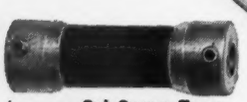
specify couplings by

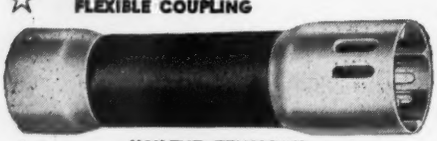
Guardian



Molded Nylon Jaw FLEXIBLE COUPLING



Set Screw Type FLEXIBLE COUPLING



"SILENT TENSION" Splined Sleeve FLEXIBLE COUPLING

Only Guardian makes all three types* of couplings used in the Oil Burner Industry . . . to fit any blower wheel!

Only Guardian offers all these features:

- **Dynaline Fabrication**—elements stay in line because they're spun together while running true.
- **One-piece Construction**—easier to assemble and remove—saves time.
- **"Silent Tension"**—for snug fit, quiet operation and longer service life.
- **Molded Nylon Jaws**—DuPont Nylon for longer wear . . . 2 alternate locations for faster, easier location.

Send for Guardian Catalogs C101 and C104.

HANDY SERVICEMEN'S KITS—Four sizes—Standard and Economy assortments. Steel case. Meet 99% of service needs.

GUARDIAN QUALITY OIL VALVES

Four styles to meet Underwriters' Laboratories under-tank opening requirements — effective Jan. 15, 1954. Send for Bulletins V-101 and V-101A.

Guardian
PRODUCTS CORP.
COUPLING DIVISION

Dept. F-44, 1231 E. Second Street

Michigan City, Indiana

their order of significance. Thus they gave some kind of a score to each of the five considerations. Recognizing only the first choices, we find that New Products lead with 55%. Second was the speaking sessions with 25%. Another 14% gave first place to the stimulation of industry confidence that comes with such an exposition. Next among the first choices with 4% was easing the pressure for a few days. Fifth and finally among first choices with 2% was good fellowship, meeting old friends.

Why they go to Conventions

It would not be right, however, to score a convention strictly on the basis of first choices in such a voting. The weighted impression of the overall study in which we include second, third, fourth and fifth choices in every item gives us a final and more accurate scoring as follows: New Products 33%, speakers 23%, industry confidence 17%, good fellowship 14% and finally, get away from home a few days and ease the pressure, 13%. Thus we see that the strictly business phases of the trip embracing the new products and the speakers add up to 56% of the reasons for coming, while the stimulus of good fellowship, change of pace, and "esprit de corps" account for 44%.

Next we asked if they will be attending the Philadelphia exposition in May and find that 62% of the reporting group will be there. The closer the company to Philadelphia the more likely to show up. For example, the Mid-Atlantic voted 86% yes.

The average company will send two men and they will stay two days.

The average cost per man including all expenses will be $144 and there is an interesting variation on this by sections of the country. From New England the cost per man will be $85; from the Mid-Atlantic states $48; from the Mid-West $186 and from the Pacific Northwest $740.

The average cost per company is estimated at $221. In this connection there were a number of interesting wisecracks, such as the man who wanted to know if we meant the liquid cost or the solid.

Recognizing that new products are the leading cause of attendance at an oilheating show we asked the dealers what new products are of highest interest to them. To our considerable surprise, residential airconditioning in the form of combination heating and cooling applications rated 51% of all products mentioned. This is one of the most interesting situations we have yet encountered. The amount of residential cooling is still very small in relation to new heating installations but most of the dealers want to know more about it and believe, apparently, that they will be doing it before long.

After this one overwhelming interest we find five products of secondary importance in that they each rated from 4% to 8% of mentions. These are perimeter heating, domestic oilburners in general, controls, packaged steam generators, and a general classification that would be called "get the prices down and let's see it." Beyond that, with fewer than 4% of total mentions but still decidedly important in a big exposition were these items. Baseboard radiation, packaged boiler units, new types of radiation, small four inch duct systems, combination oil-gas burners, electronic precipitator, controlled humidifier, industrial oilburning equipment, small gun-type No. 5 oilburners, and last but probably one of the most important, competing equipment.

Bad Debt Losses

BAD DEBT LOSSES: At the request of one of the reporting dealers we ran a question this month asking how much the group had charged off as bad debts at the close of 1953. There was quite a variation by companies but the average of the lot was .63% of the year's gross billing. The variation ran from .10% up to 2.0%. There is considerable evidence of a difference in philosophy on this point. Some companies are very proud of the fact that they lose practically nothing while we know of other companies that would fire the credit managers if his losses were less than .5%.

Among those companies that feel it's smart to be fairly liberal on credits we find that 23% of the reporting group had bad debts amounting to 1% or more of their year's billing.

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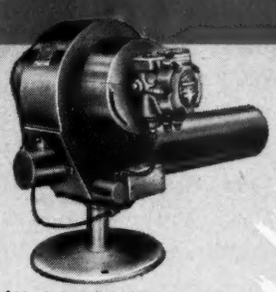
CHOOSE SUN-RAY

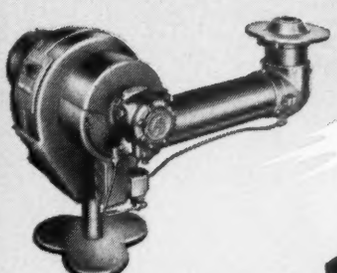
Way ahead with extra values

FOR EVERY HEATING NEED FROM 0.5 TO 25 G.P.H.

*Model S Burner with special aerodynamically designed housing for famous fuel saving "Shell" Combustion Head; 0.7 to 2 g.p.h.

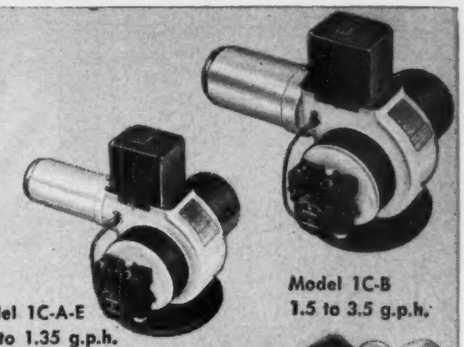


*Model S-1, with special aerodynamically designed housing for famous fuel saving "Shell" Combustion Head; 2 to 3 g.p.h. Model S-2, 3 to 6 g.p.h.



*Model VS (Vertical Flame), with special aerodynamically designed housing for famous fuel saving "Shell" Combustion Head; 0.7 to 2 g.p.h. Model VS-1, 2 to 3 g.p.h.

*Delayed action oil valve mounted and wired. Available on other models as an extra. Built-in electronic controls optional on all models.

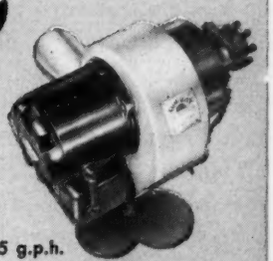


Model 1C-A-E
0.5 to 1.35 g.p.h.
Model 1C-A
0.75 to 2 g.p.h.

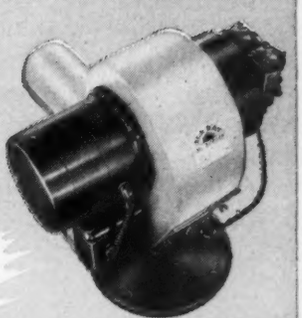
Model 1C-B
1.5 to 3.5 g.p.h.

Flanged Models for all requirements.

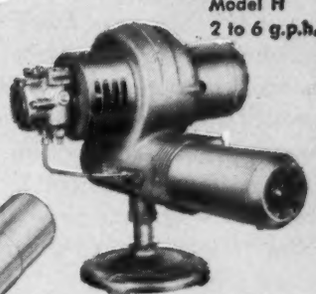
*Model 1C-6
3 to 6.5 g.p.h.



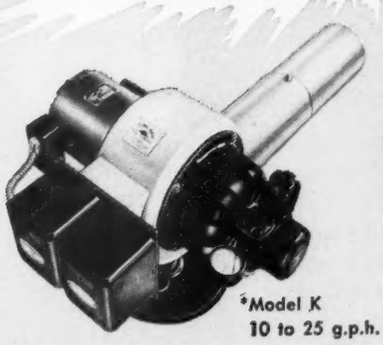
Model G
0.75 to 2.5 g.p.h.



Model H
2 to 6 g.p.h.



Model H-2
5 to 8 g.p.h



*Model K
10 to 25 g.p.h.

*Model J
6 to 12 g.p.h.

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Inquiries invited from boiler and furnace manufacturers

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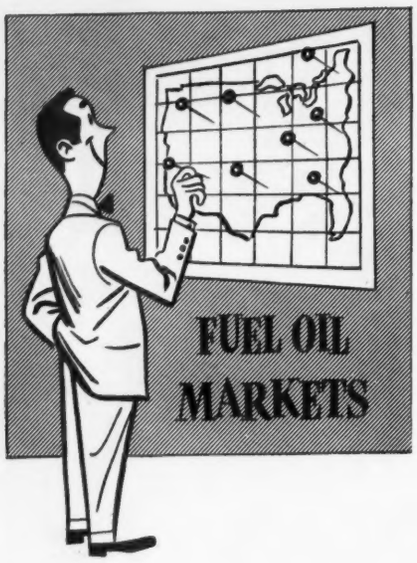
Visit Booths 309-11 at the Oil Heat Show & National Indoor Comfort Exposition, Philadelphia, May 16-20.



In launching this new page as a regular monthly feature, it was our intention to report prices on distillate heating oils for 40 principal markets. But due to the fast changing quotations in several parts of the country just at the last minute we will now wait until the next issue to start the price reporting.

Price news on a monthly basis is not current enough for daily operation but does have an historic value and also is useful for charting trends. Moreover it will enable subscribers to know how their markets compare with others at wholesale and retail levels.

After we get the department rolling we'll try and add other fuels of the heavier grades.

THE MOST significant market development at presstime was Esso's downward shuffling of both distillate and light residual prices along the Atlantic Seaboard. On March 24 the Company dropped No. 2 kerosene and diesel quotations by amounts from .2¢ to .6¢ at both tank wagon and tank car levels at New York Harbor and several New England points.

The next day it cut No. 4 and No. 5 oils at New York and Boston harbors by 4¢ to 12¢ a barrel.

These are the inevitable results of the extremely mild Eastern winter which to the end of February ranged 10-14% warmer than normal in the large oilheating cities.

At New York Harbor fueloil distributors reached a No. 2 margin of 3.9¢ while barge buyers got an extra .2¢. That represents a .3¢ margin rise.

DEGREE DAY TABLES

—ONE MONTH ONLY— Normal	February 1953	February 1954	Percent Change*		—SEASON TO DATE— Normal	Sept. thru Feb. '52-'53	Sept. thru Feb. '53-'54	Percent Change*
1179	1005	935	—20.7	Albany AP	5056	4620	4573	— 9.6
515	485	405	—21.4	Atlanta CO	2283	2242	2125	— 6.9
776	636	565	—27.2	Baltimore CO	3197	2826	2738	—14.4
1002	834	792	—21.0	Boston AP	4123	3690	3589	—13.0
1128	956	886	—21.5	Buffalo AP	4776	4315	4196	—12.1
1053	924†	761	—27.8	Chicago AP	4648	4191†	3814	—17.9
812	707	573	—29.4	Cincinnati CO	3471	3252	3032	—12.6
977	823†	796	—18.6	Cleveland AP	4080	3696†	3623	—11.2
432	406	232	—46.3	Dallas AP	1915	1898	1769	— 7.6
854	851†	589	—31.0	Denver AP	4053	3701†	3452	—14.8
1092	985†	759	—30.5	Des Moines AP	4876	4757†	4236	—13.1
1072	914	874	—18.5	Detroit AP	4600	4205	4013	—12.8
1086	950	854	—21.4	Grand Rapids CO	4663	4388	4077	—12.6
1050	850	803	—23.5	Hartford AP	4497	3990	3938	—12.4
1165	979	842	—27.7	Helena AP	5881	5115	4831	—17.9
265	252†	138	—47.9	Houston AP	1180	1350†	1012	—14.2
893	770	659	—26.2	Indianapolis CO	3877	3640	3421	—11.8
851	685	541	—36.4	Kansas City AP	3811	3519	2895	—24.0
244	180	98	—59.8	Los Angeles CO	1030	847	693	—32.7
778	661†	567	—27.1	Louisville AP	3444	3141†	3097	—10.1
1117	1043	858	—23.2	Milwaukee CO	4907	4768	4189	—14.6
1310	1313†	924	—29.5	Minneapolis AP	5863	5704†	5126	—12.6
229	222	117	—48.9	New Orleans CO	1007	951	881	—12.5
904	755	688	—23.9	New York CO	3670	3267	3135	—14.6
1058	921	667	—37.0	Omaha AP	4728	4626	3948	—16.5
837	693	625	—25.3	Philadelphia CO	3394	3069	2937	—13.5
879	752	685	—22.1	Pittsburgh CO	3761	3391	3312	—11.9
1218	1041	998	—18.1	Portland, Me. AP	5367	4800	4829	—10.0
594	544	558	— 6.1	Portland, Ore. CO	2985	2531	2642	—11.5
1019	801	825	—19.0	Providence AP	4339	3593	3876	—10.7
722	621†	594	—17.7	Roanoke, Va. AP	3195	3013†	2948	— 7.7
792	653	559	—29.4	St. Louis CO	3485	3230	2940	—15.6
857	749	768	—10.4	Salt Lake City CO	4076	3452	3464	—15.0
336	300	302	—10.1	San Francisco CO	1680	1631	1468	—12.6
1442	1270	1130	—21.6	Sault Ste. Marie AP	6369	5758	5659	—11.1
602	576	548	— 9.0	Seattle CO	3037	2630	2788	— 8.2
1056	921	822	—22.2	Toledo AP	4617	4229	4017	—13.0
781	617†	595	—23.8	Washington AP	3304	2911†	2898	—12.3

*Compared with normal. †City Office.

Distillate Fueloils

PRIMARY STOCKS*
(Thousands of Barrels)
East of Rockies

	March 13, 1954	March 14, 1953
East Coast	24,563	21,900
Midwest	17,572	13,343
Gulf Coast	10,559	16,538
Total	52,694	51,781

*American Petroleum Institute.

SECONDARY STOCKS**
(Thousands of Barrels)

	January 31, 1954	January 31, 1953
East Coast	2,781	2,854
Midwest	3,294	3,320
Gulf Coast	598	671
Mountain	100	99
Pacific	91	101
Total	6,864	7,045

**Bureau of the Census.

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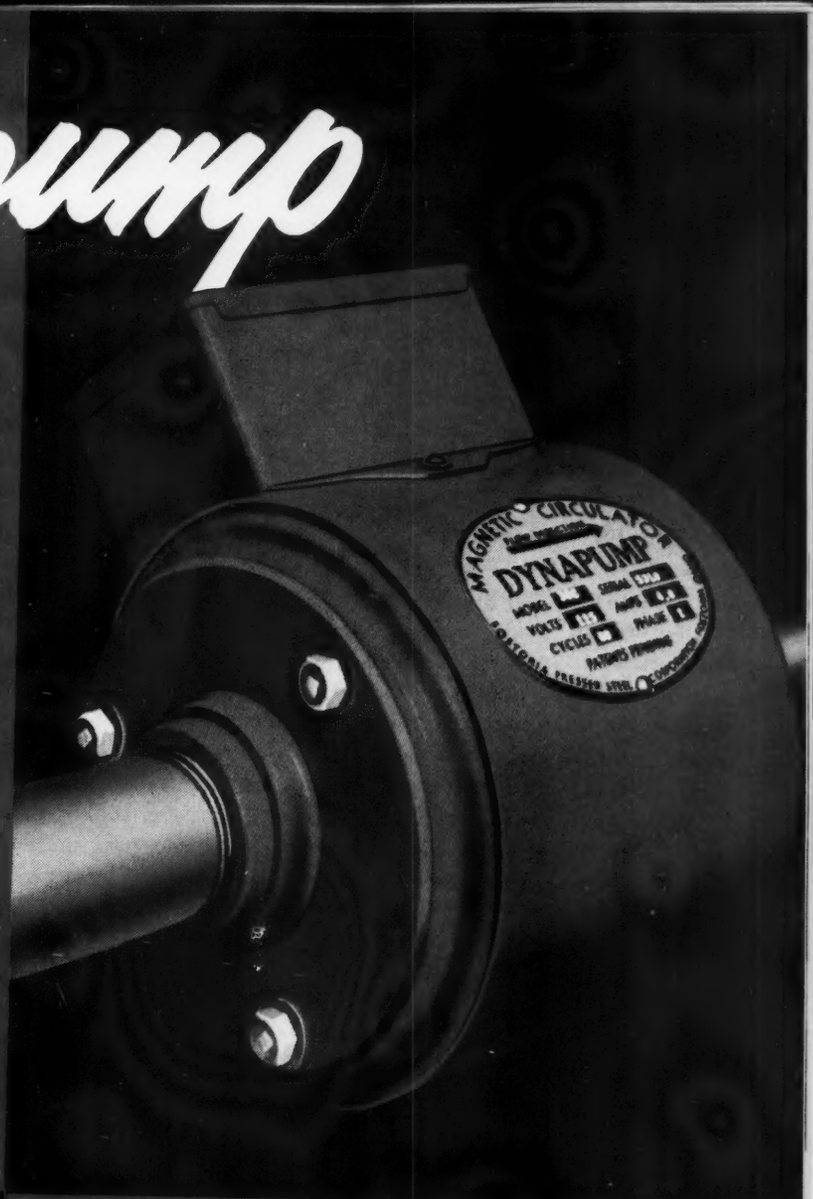

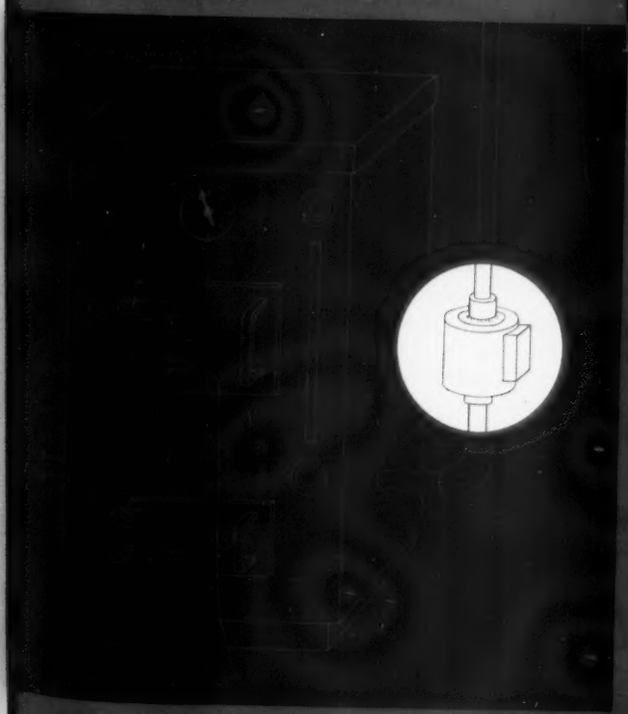

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Government Influences on Fuels

by
Milburn Petty

WASHINGTON—"Billions of dollars" will be added to the value of gas reserves, if the pipeline companies are permitted to use the current market price for their own gas production in arriving at a rate base, according to Senator Ferguson, Michigan.

So, Ferguson has introduced a bill declaring "that the value for rate-making purposes of gas reserves held by any natural gas company shall in no case be deemed to exceed the actual cost of such reserves to such company."

In other words, Ferguson wants the pipeline companies to receive only 6% return on the original cost of their production. (Gas companies contend that a 6% return is insufficient incentive for them to engage in the risky business of searching for and developing gas reserves.)

The issue of "fair field prices" for pipeline-produced gas is involved in a case (Panhandle Eastern) now pending before the Federal Power Commission, as pointed out by Ferguson when he introduced the bill.

While he "hopes" the FPC will reject "the attempt to write up the value of gas reserves at the expense of the rate-payers," Ferguson said he believed that consumers should be protected from such efforts by legislation.

Otherwise, such a policy would mean "billions of dollars in additional profits" to the pipeline companies over the life of their gas reserves.

'Local' Control of Gas OK'd

Meanwhile, President Eisenhower has signed the Hinshaw Bill giving state utilities commissions exclusive control over the distribution of gas within a state.

This measure, strongly backed by the state commissions, bars the FPC from any jurisdiction over local gas distribution.

It was severely attacked on the Senate floor by some senators who contended that it would add many millions to gas prices paid by consumers.

The pressure against the bill did not let up even when it was passed by an overwhelming vote. It was charged that this constituted an "abdication of federal control over natural gas."

But these attacks were really only warm-ups for renewal of the bitter battle over the Kerr Gas Bill (specifically barring the FPC from control over field sales of natural gas by independent producers and gatherers, vetoed by President Truman) which may follow in wake of the Phillips Case.

Gas Price Control at Issue

If the Supreme Court's decision in the Phillips Case, now pending, does not "clarify" the issue of federal control over field sales of natural gas to the satisfaction of independent producers, it can be expected that they will seek legislative relief.

A decision holding that Phillips Petroleum Co. was under the Natural Gas Act—and subject to regulation by the FPC—because of sales to interstate pipelines, might be applied to hundreds of other gas producers.

If so, it might have a profound effect upon gas supplies because many contracts with the pipelines are cancellable when and if the FPC assumes jurisdiction over gas producers.

Texas May Set Gas Prices

Texas, casting about for some new means of "making the gas pipelines pay their share" of government costs, is considering an increase in the tax on gas production in lieu of the pipeline tax recently voided by the Supreme Court.

If the Lone Star State does adopt this course, independent producers may insist that the state also set minimum prices for gas at the wellhead.

Coal Holds Fire on Gas Bill

Although the coal people had previously shown an interest in the Dirksen-Douglass Bill granting the right of eminent domain to gas pipeline companies to condemn locations for underground storage projects, they did not appear when the hearings were held. But they said they might want to be heard later.

Testimony of the gas companies, however, revealed just how necessary it is for them to store gas during the off-season so that they can meet peak demands later.

One pipeline witness said that more than half of his company's requirements were being supplied from underground storage on peak-demand days.

Ban on Canadian Gas Sought

Chairman Bricker of the Senate Commerce Committee has told coal-state senators that he hopes to hold hearings this spring on bills to ban the import or export of natural gas where a "competing fuel industry" of the United States might be injured.

Intent of this legislation, backed by the coal interests, is to ban importation of Canadian gas into the Pacific Northwest and elsewhere.

Meetings to develop grass roots support for this bill, as well as import quotas on foreign residual fueloil, are being sponsored in many cities by coal interests.

No Oil Import Curb Seen

Despite this grass-roots drive by coal people, the Eisenhower Administration appears adamant against restricting oil imports—particularly residual which comes mainly from Latin America.

Meanwhile, independent oil producers have warned that continued growth of imports at the expense of the domestic industry is dangerous. But they are apparently still pinning their hopes on voluntary action rather than legislation for import quotas.

Top officials of the Administration have given assurances that they will urge importers to hold imports roughly at current levels, even if Iran comes back into the world market.

Jet Fuel Demand to Rise 80%

The military's requirements for jet fuel, during the fiscal year starting July 1st, will total 83 million barrels as against 47 million in the current year.

Years ago, this would have made a dent in distillate supplies but jet fuel now averages about 75% gasoline.

About 72% of the military's oil purchases from U. S. sources is lifted from the Gulf and Mid-West; 21% from the West Coast; and 7% from the East Coast.

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The new 8000 series WEBSTER Fuel-unit is designed to give maximum performance with modern, compact oil heating systems. It offers a host of service-saving features of prime importance to oil heating equipment manufacturers and dealers.

Exhaustive field tests prove the new WEBSTER 8000 series Fuel-units to be the most quiet and trouble-free available. Yet nothing has been sacrificed. Complete mounting interchangeability is retained. So is ease of installation in any type of piping arrangement. Servicing, if necessary, is further simplified.

NEW Strainer Assembly

New basket-type strainer (*illustrated at left*) is made of corrosion-resistant monel wire cloth, protected against collapse. Quickly and easily removed from top of unit, without oil spillage. Filtering surface is completely exposed, simplifying cleaning. Can't be installed wrong.

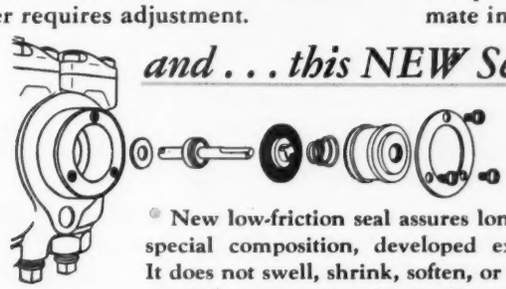
The new strainer assembly has a fixed silencer orifice which permanently and effectively eliminates tank hum regardless of the condition of the strainer. It never requires adjustment.

NEW Valve Assembly

New piston valve assembly (*illustrated at right*) provides positive pressure regulation, easily adjusted without dismantling. Large diameter piston assures quick opening. Special helical passage is self-cleaning. Hard chrome finish minimizes wear, eliminates sticking. New stainless steel outlet seat gives positive seal and sharp, clean cut-off.

New non-metallic hydraulic silencing cushions absorb hydraulic pulsations on the pressure side and assure the ultimate in quiet operation.

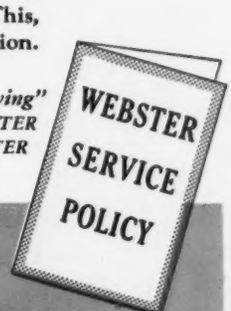
and . . . this NEW Seal Assembly



New low-friction seal assures long trouble-free life. Diaphragm is a special composition, developed exclusively for WEBSTER ELECTRIC. It does not swell, shrink, soften, or harden in any fuel oil. Seal face is specially tempered spring-quality steel and seal nose is a special bronze alloy. Spherical-type bronze outboard bearing is self-aligning. This, combined with the low friction seal, results in low wattage consumption.

Write for **Specification Sheet No. A8A1** *which gives further details*

Find out more about WEBSTER "Service-saving" Equipment . . . and the extra-liberal WEBSTER Service Policy. See your nearby WEBSTER Authorized Service Station or write us.



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OHI show convention Programs announced

PROGRAMS for the 20th Oil Heat Show and National Indoor Comfort Exposition and the 32d annual meeting of the Oil-Heat Institute of America, Inc., being held concurrently at Philadelphia's Commercial Museum, May 16 to 20, are approaching their final phases. The hours when the exhibits will be open already have been established and J. H. B. Albert, chairman of the Program Committee for the convention is directing the committee's efforts at finalizing a schedule that will insure a program "for dealers by dealers."

He says, "Our objective is to present a fast-moving program full of meat to help oilheating equipment and fueloil dealers improve their operations, give better service, installations and fueloil delivery for the good of the industry and themselves. Every subject will be of paramount interest to the industry and experts in their fields will be our speakers."

Sessions to start at 9:30

General sessions are to be held in the ballroom of the Commercial Museum, starting at 9:30 A.M. each day from Monday, May 17 through Thursday, May 20. In this way, afternoons and evenings will be left free for visitors to concentrate on exhibits.

And at last report more than 130 exhibitors had reserved better than 30,000 sq. ft. of display space to show a variety of oilburning equipment and accessories for residential, commercial and industrial use. A feature of the show this year will be a section set aside for commercial-industrial exhibits, with a special session scheduled as part of the convention proceedings to call attention to this portion of the exposition.

A number of oilburners will be shown under fire in the "live exhibits" area and, finally, to reflect the interest in home cooling installations, a number of manufacturers are arranging to include such equipment in their displays. Basically, the manufacturers are highlighting features, functions, design advancements, servicability, new methods and systems.

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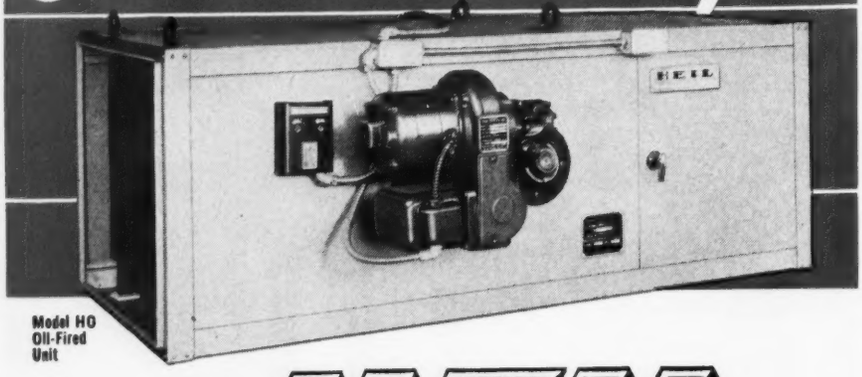

Model HO Oil-Fired Unit

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Model HG Gas-Fired Unit

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- 5 gas-fired models; inputs ranging from 60,000 to 140,000 BTU.
- 4 oil-fired models; outputs ranging from 80,000 to 224,000 BTU.
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- Control mounting and flue outlet on gas model are completely and easily reversible.
- Gas model approved by AGA for safety and efficiency. Approved for attic installation.
- Oil model approved by Underwriters' Laboratories for installation within 6" of combustible materials.
- Both oil and gas units are full factory assembled and wired.
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- Brackets are anchored to inner iron liner for suspended or base mounting.

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The Heil Co. is a member of OHI, GAMA and an associate member of NHWA.

M. J. Donahue is general chairman of the convention and exposition. He explains the advance work of his committee as aiming at establishing "a pattern planned to embrace all of the broad facets neressary for the health and prosperity of our industry."

R. H. L. Becker, managing director of the Institute is handling administrative details, including reservation of exhibit space. Information about available space can be secured from the Institute at 500—5th Ave., New York.

As in previous years social events will be provided for the dealers and manufacturers who come to Philadelphia as well as for their wives. A Ladies' Program is being prepared for their entertainment, with a registration desk provided for them in the Benjamin Franklin Hotel where details of daily activities can be obtained.

Old Timers' to meet

Then, Jim Owens, chairman of the Old Timers' Club, already has completed arrangements for the group's annual meeting and dinner party. It will be held on the evening of May 18 at the Philadelphia Rifle Club. Old Timers will receive a formal announcement soon from club headquarters.

Also, the Accessory Division will hold its annual luncheon on May 19, according to Bruce Olson, chairman of the Division, plans for which have been virtually completed.

Included in the scheduled social events is an open house planned for the evening of May 19 by the Oil Heat Old Timers. More details will be forthcoming as soon as final plans are made, but it is the present intention to have the affairs at the Benjamin Franklin Hotel.

Exhibit hours will commence on Sunday, May 16 from 1 to 8 P.M., with special attractions for the general public. Monday, Tuesday and Wednesday the hall will be opened from 1 to 10 P.M. and on Thursday from 1 to 6 P.M. There will be no registration fee for anyone, which should be a further inducement for industry personnel to attend and learn more about the convention's theme, "How we can make more in 1954."

Morning and afternoon general sessions will be held in the ballroom of

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★ *Efficient drive-through layout together with Red Seal remote metering cut loading time tremendously in this fuel oil bulk plant.*

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RED SEAL REMOTE CONTROL METERING

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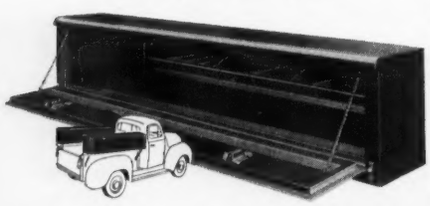

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the Commercial Museum. On Monday, May 17, the morning session will be devoted to "Proper delivery Procedures boost Sales" and a "Fueloil Delivery round Table'" will be conducted that afternoon.

May 18, Service and Installation Day, will feature a morning session telling how "He sells most Who serves best" and another round table, this on service and installation problems after lunch. Dealer Day is Wednesday, May 19, with "Management, sales Problems and Profits" the topics to be covered in the A.M. meeting and a dealer management round table to take place in the afternoon.

This begins after the Accessory Division luncheon on May 19 at which Col. Jack Major from Paducah, Ky., speaking on "Hogs, Women, Taxes," will be the attraction.

Industry Day closes the program on May 20 with a morning conclave on "Sell more to make more in '54."

In the P.M. on May 20, everyone is urged to reserve time for an industry cocktail hour and the 32d annual banquet and entertainment.

Oil-Heat Institute sessions scheduled as part of its annual meeting begin with meetings of the Executive Committee on Sunday, May 16, and a final inspection of the exhibit area by the Exposition Committee. On May 17 the retiring board of directors meeting and the annual meetings of the Accessory and Distribution Divisions are held.

The annual meeting of the Institute takes place on May 18, followed by meetings of the new board, the Engineering Committee and Distribution Division Chapter secretaries. On Wednesday, May 19, the Commercial-Industrial Section and Technical Division have arranged for meetings.

❖

Nils D. Sellman, former airconditioning manager of the Southern region, becomes airconditioning manager, Eastern region, Servel, Inc., Evansville, Ind., with headquarters in New York City. *Patrick B. Krapfl* succeeds Sellman and will have headquarters in Atlanta, Ga. Sellman has been with Servel since 1947, first as a sales representative and then zone manager for the New England area.

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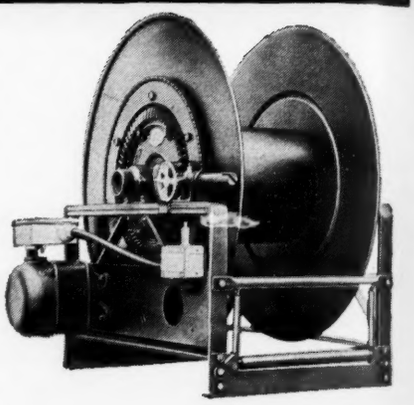

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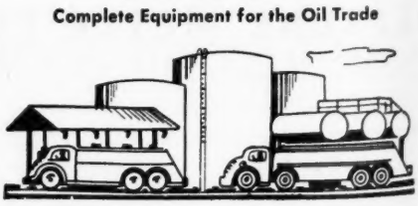

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New Chevrolet trucks bring you great new engine power in every model—from light-duty pickups to heavy-duty tractors. And this new power means important savings of both time and money on the job!

YOU SAVE TIME WITH GREATER SAFETY

That's because new Chevrolet trucks permit you to maintain faster schedules *without* driving at higher maximum road speeds. Thanks to greatly increased acceleration and hill-climbing ability, you can save time where it counts. Instead of trying to make up for lost time, you actually cut down the time lost at traffic lights and on steep grades.

YOU SAVE PLENTY ON OPERATING COSTS

New Chevrolet trucks bring you high-compression power that saves you money every mile. All three great engines—the "Thriftmaster 235," the "Loadmaster 235" and the "Jobmaster 261"* deliver greater horsepower *plus* increased operating economy. In addition, the mighty "Jobmaster 261" engine reduces the need for operating in low gears on heavy-duty jobs. As a result, you shift gears less . . . save more on gas.

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**Optional at extra cost. Ride Control Seat is available on all cab models, "Jobmaster 261" engine on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.*

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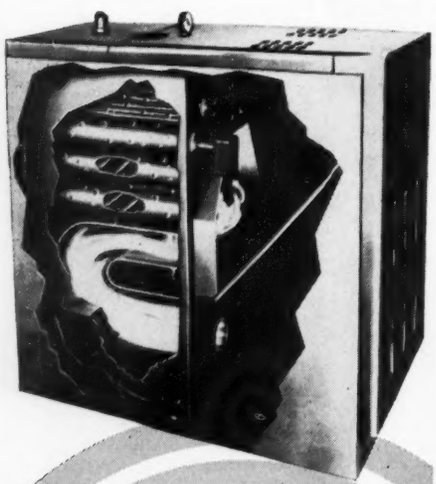
...offers you top efficiency and economy!



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Oil Reserves rise despite record Production last Year

PROVED RESERVES of liquid petroleum and natural gas rose to new all-time peaks in 1953 despite the highest production rates in history. A joint annual report prepared by the American Petroleum Institute and the American Gas Association, covering the calendar year 1953, reports proved reserves of liquid petroleum at 34.3 billion barrels and those of natural gas at 211.4 trillion cubic feet. These represent net increases of 1.4 billion barrels in liquid petroleum and 11.7 trillion cubic feet in natural gas reserves.

These additions were made in the face of record breaking withdrawals of oil and gas in 1953. Liquid petroleum, which consists of crude oil and natural gas liquids, was estimated at 2.6 billion barrels and natural gas at 9.2 trillion cubic feet. New liquid petroleum supplies developed in 1953 aggregated slightly more than 4 billion barrels, so that for each barrel of oil withdrawn from the ground last year the industry found enough, not only to compensate for each barrel produced but also to add slightly more than ½ barrel to reserves. Natural gas supplies developed similarly added 1.27 cubic feet to reserves for each cubic foot withdrawn from the ground.

The liquid petroleum reserves estimated by API consist of 28,944,828,000 barrels of crude oil and 5,437,922,000 barrels of natural gas liquids.

Actually, the joint API-AGA report covers new discoveries, revisions of previous estimates and extensions of known pools. Reserves represent known supplies, the location and extent of which have been established by continuous drilling programs, but excluding estimates of oil or gas in the United States which may be found later to underlie the vast acreage known to be favorable to the accumulation of oil and gas but which remains untested.

An accompanying report of the Canadian Petroleum Association estimates proved reserves of crude oil and natural gas liquids in western Canada at the end of 1953 at 2.0 billion barrels of 35 Imperial gallons. The estimate is based upon the same approach

ESTIMATED PROVED RESERVES OF LIQUID HYDROCARBONS IN THE UNITED STATES

(*Barrels of 42 U. S. gallons*)

	Proved Reserves as of December 31, 1952	*Production during 1953*	*Proved Reserves as of December 31, 1953*
Alabama	15,635,000	1,678,000	17,160,000
Arkansas	352,261,000	28,054,000	358,231,000
California*	3,854,171,000	365,085,000	3,919,379,000
Colorado	305,691,000	35,680,000	319,254,000
Illinois	619,461,000	58,239,000	624,803,000
Indiana	55,535,000	12,200,000	62,128,000
Kansas	916,989,000	114,673,000	913,341,000
Kentucky	55,565,000	11,319,000	81,655,000
Louisiana*	2,557,530,000	238,455,000	2,759,655,000
Michigan	57,411,000	12,287,000	60,721,000
Mississippi	358,809,000	33,526,000	350,101,000
Montana	156,181,000	11,962,000	208,985,000
Nebraska	21,836,000	6,129,000	25,621,000
New Mexico	733,358,000	69,988,000	814,902,000
New York	52,854,000	3,771,000	49,083,000
North Dakota	76,203,000	5,240,000	128,271,000
Ohio	27,390,000	3,695,000	31,826,000
Oklahoma	1,557,620,000	199,682,000	1,752,228,000
Pennsylvania	121,724,000	10,641,000	111,083,000
Texas*	14,916,168,000	1,001,602,000	14,998,620,000
Utah	42,399,000	1,777,000	37,937,000
West Virginia	37,212,000	3,000,000	36,612,000
Wyoming	1,064,722,000	82,594,000	1,279,110,000
Miscellaneous†	3,829,000	579,000	4,122,000
Total United States	27,960,554,000	2,311,856,000	28,944,828,000

* Includes off-shore reserves.
† Under Miscellaneous are included Florida, Missouri, South Dakota, Tennessee and Virginia.

and make more money...

Over the last few years, you've heard some good arguments for expanding into air conditioning.

You may have sold room air conditioners or central systems. If you did, chances are you have discovered that

Air Conditioning Poses Problems:

1. The high volume appliance dealer is pretty rough competition when it comes to selling window-type air conditioners.
2. *Central systems* require experienced estimators, engineers, installation crews, and servicing organization—all added overhead.

Remington Has the Answer

It's a new 3rd-Way of home cooling—with equipment that's right down your alley—units that eliminate room air conditioner competition—eliminate the problems and expense of central system installations—units designed to cool just those 2, 3, or 4 rooms of a house that are used the most.

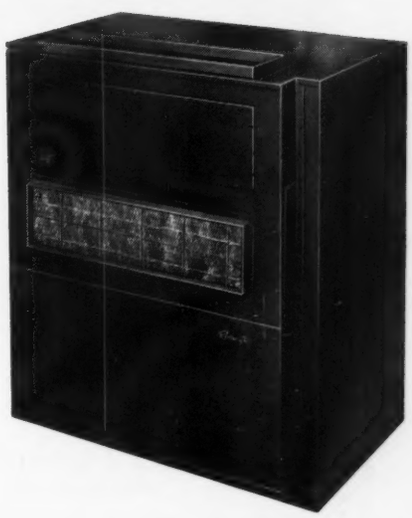
You can handle this entirely new line with your present sales, installation, and service organization.

This new concept in home air conditioning fills a long existing need. Get in on the new Residential Air Conditioners by Remington (shown at right).

Sales Advantages

1. Gives true year-round air conditioning with any type heat.
2. Ideal for old or new houses.
3. Costs less than any other system to install and use.
4. Requires a minimum of ducts and alterations.
5. Needs no water, piping or costly cooling towers.
6. Not subject to water restrictions, zoning or insurance regulations.
7. Eligible for mortgage coverage.

Remington Model 120 "2-Roomer" water-less air conditioner.



Remington Models 180 and 250 water-less "3-Roomer" and "4-Roomer" air conditioners.

Remington also manufactures a complete line of handsome new window units and luxurious full size consoles for home and office cooling of single rooms. Write for specification sheets.

How you can get more information

Send today for the 8-page bulletin H-54 which describes Remington's 3rd-Way units in detail. Mail the coupon at right.

Remington AIR CONDITIONING

REMINGTON AIR CONDITIONING DIVISION
2-1 Willey St., Auburn, N. Y.

Please send bulletin on new 3rd-Way Home Cooling

Name_____

Firm_____

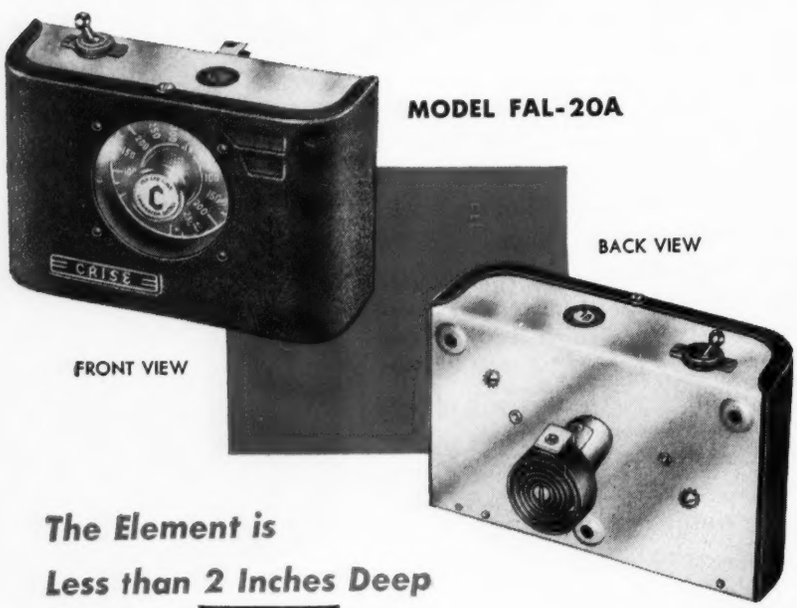
Address_____

City_____ Zone_____ State_____

CRISE

Presents A COMPACT

BIMETAL Combination Fan and Limit Control with Summer Switch



The Element is Less than 2 Inches Deep

Does the length of the helix element on conventional fan and limit controls pose a problem for you? Then take a close look at this new *thin* Crise Model FAL-20A, made with a "watchspring" type bimetal element. *This element is less than 2-inches deep.* You can easily slip one of these into a minimum area between your control panel and heat exchanger. You'll have a cleaner looking, more compact design. You'll gain in performance, too, for this spiral bimetal element has proved to be extremely positive, fast acting, and durable.

Already, thousands of Crise FAL-20A fan and limit controls are giving superior service on leading makes of furnaces. Increased production facilities now make this announcement possible. Furnace manufacturers are invited to ask for samples and quotations. Write, wire or phone today.

CRISE CONTROLS DIVISION

ACRO MANUFACTURING COMPANY

COLUMBUS 16, OHIO

as used in the API report and indicates an increase of 298,665,000 barrels over the reserves of 1.7 billion barrels reported at the end of 1952.

In the Canadian report were included estimates for the provinces of Alberta, Saskatchewan, Manitoba, Ontario and New Brunswick, as well as the Northwest Territories. A breakdown of the total shows that estimated reserves in western Canada consist of 1.8 billion barrels of crude oil and 2 million barrels of natural gas liquids. All of the natural gas liquids are located in Alberta.

❖

Survey finds it inexpensive to provide domestic Cooling

THE MARCH issue of *House & Home* magazine reports results of its research into the cost of airconditioning homes. In 1953, second hottest summer in the history of the Dallas weather bureau, the report found that a group of 35 families paid average electric bills of less than $13 a month for cooling their 1,150 sq. ft. homes. Water bills for cooling towers ran $2 to $3 for the entire summer.

Dallas, the report explains, is hotter and much more humid than average United States cities and last summer the temperature hit 100° or higher on 34 different days. Operating costs for cooling in houses like these, it is concluded, would be even lower in almost any other area.

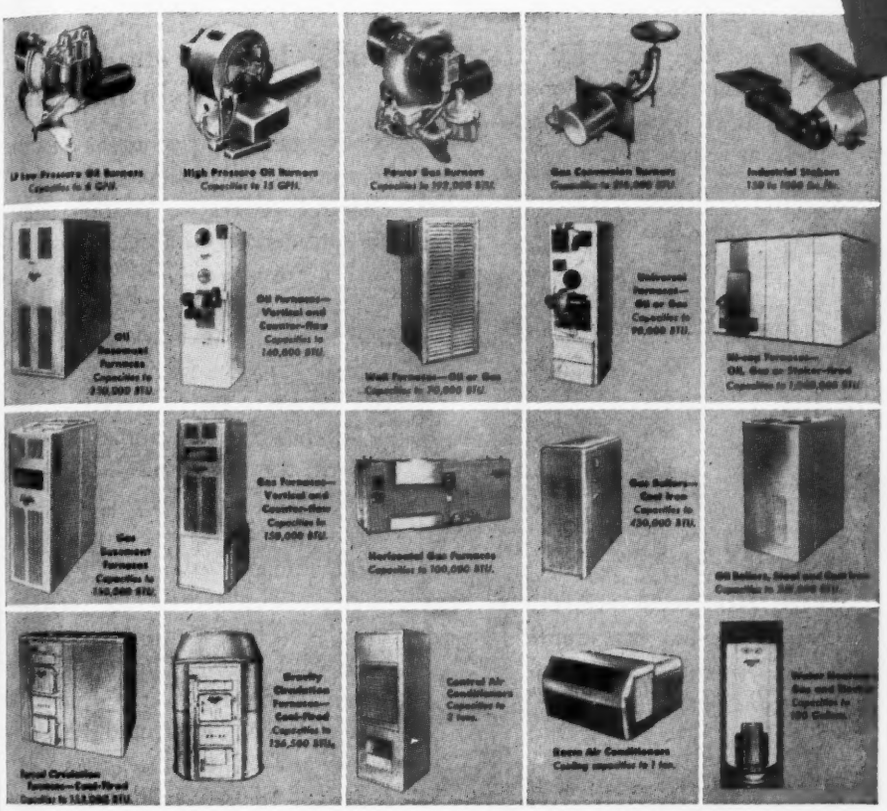
FHA-VA now requires a family to have as much as $100 a month higher income to qualify for a $12,500 house with airconditioning than for a house without it. It seems likely that these findings would upset such requirements.

The Dallas homes surveyed sold for $12,500 in 1952. They are 1-story, 3-bedroom homes with carport and slab floors. Thirty-three houses have 2-ton G.E. central airconditioning units; the other two have 3-ton units. The houses have 24" overhangs, 3" mineral wool insulation or equivalent in aluminum foil in the roof and 2" wall insulation. Even more savings would have been possible, the builders and engineers said, if all big windows had been fully shaded.

EASIER TO SELL THAN TO SELL AGAINST—*INVESTIGATE!*

WINKLER

DIRECT FACTORY FRANCHISE



AMERICA'S MOST COMPLETE LINE OF COMFORT EQUIPMENT

NEW OIL AND GAS FURNACES
NEW POWER GAS BURNERS
NEW GAS CONVERSION BURNERS
NEW GAS AND ELECTRIC WATER HEATERS
NEW OIL AND GAS BOILERS
NEW SUMMER AIR CONDITIONERS

Winkler offers you the most valuable franchise in the heating industry today! In seven ways, Winkler dealers are given an unparalleled opportunity to make 1954 a banner year for sales and profits!

With the most complete line of home comfort equipment in this country, you can meet every buyer's needs and preferences . . . you have the edge in any selling situation.

Check the "Sensational Seven" below—where can you find their equal?

1. **Sensational line of equipment.** Conceded to be America's most complete array of home comfort products.
2. **New stocking plan.** Easy to finance a full stock—no sales lost for lack of equipment.
3. **New warehouse locations.** Strategically located for speedy delivery.
4. **Complete year 'round line.** Offers extra profits to live dealers.
5. **New merchandising tools.** Everything a dealer needs to uncover prospects and get the order!
6. **Bigger national advertising and sales promotion program.** An increased advertising schedule—monthly sales promotion programs—dealer cooperative advertising plan.
7. **Bermuda Cruise.** Winkler dealers—new (if they hurry) as well as old—can win this glamorous vacation cruise.

Winkler certainly offers more in '54

WRITE TODAY... A FRIENDLY WINKLER DISTRICT SALES MANAGER WILL GIVE YOU FULL DETAILS

YOU FULL DETAILS—Winkler District Sales Managers are located the country over. Their sole function is to help you build your business into a hard-hitting, successful operation. Your inquiry today will have the personal attention of one of these men.

WINKLER TRAINING INSTITUTE—Winkler backs up this program with a comprehensive Training Course covering every phase of successful selling, installing and servicing of Winkler Products. Free to dealers and their personnel.

Winkler District Sales Managers, located coast to coast, help build your business.

A PRODUCT OF SW STEWART WARNER

STEWART-WARNER CORPORATION
U. S. MACHINE DIVISION • Dept. H-44 • LEBANON, IND.

• AUTOMATIC • WINKLER HEATING EQUIPMENT

Total bills for cooling electrically varied from $11.91 for a family that was away two months to $111.57 for a family that maintained 68° temperature in a house with windows facing east and west. Twenty-six bills, or 74%, ran from $41 to $80.

House & Home researchers found that total power bills and old houses give false impressions of cooling costs. Many people confuse airconditioning with total electric bills and many believe that operating costs in new homes are as high as in old homes. Further, water is a cost factor, but not a large one. In general, the researchers recommond that only if water is cheap and plentiful should it be thrown away. Otherwise, a water saving device should be used.

Typical operating costs for new houses checked in other localities by *House & Home* researchers: $9 per month in Sterling, Ill.; $11.13 in Dayton for a 2-story house with 1,256 sq. ft., 3-ton unit; $17.75 in Columbus for a 1,400 sq. ft. house operated for four months at a total cost of $71; $18.70 in Tampa for a 1,100 sq. ft. house with 2-ton unit. This house has 52 lineal ft. of glass in its west wall which boosted operating costs.

Tearsheets of the report on airconditioning operating costs are available in limited quantities from *House & Home*, 9 Rockefeller Plaza, New York.

❖

Dodge Reports show an all-time February High

DODGE REPORTS of contracts awarded for future construction projects in 37 eastern states reached an all-time high for any February during Dodge's 63-year history. Gross was $1,271,260,000, 7% higher than February 1953 and 6% greater than January this year, reversing the usual tendency for totals to drop off slightly in February.

Combined with January contract awards, the two months total set an all-time high for January-February figures, 9% ahead of the previous high for those months attained in 1951; they were 13% ahead of the first two months of 1953 which started a record-breaking year. Further, January-February records were achieved in nonresidential, residential, public works and utilities categories.

Individual two-month 1954 award totals were: nonresidential up 21% over 1953 to $941,789,000; residential at $971,255,000, an increase of 11%; heavy engineering up 5% to $460,203,000.

February totals were: nonresidential, $468,712,000, down 1% from January but 25% above February 1953; residential, $508,773,000, up 10% over January and 22% greater than last February; heavy engineering, up 12% from January, 7% over February 1953.

❖

Institute tabulates Sales of pot type space Heaters

A STATISTICAL STUDY prepared by the Institute of Cooking and Heating Appliance Manufacturers, Washington 8, D. C., reports sales of 325,886 vaporizing pot type oilburning space heaters to retail dealers during 1953. The study also analyzes distribution of this type of equipment for the period

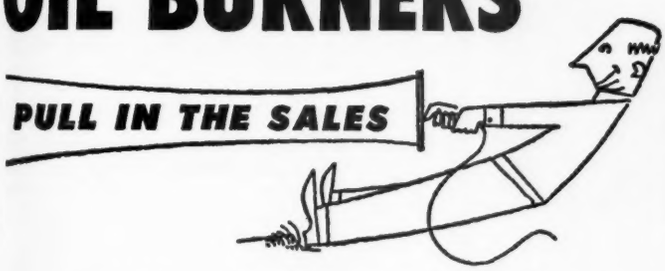
DESIGNED FOR EFFICIENCY
Experienced fuel oil service men prefer FULFLO Filters for unequalled efficiency. The true depth filtration by FULFLO Filters guarantees oil burner protection and customer satisfaction.
Handy carton of 6 HONEYCOMB Filter Tubes with gaskets and instructions.
HONEYCOMB FILTER TUBES
6 ONLY FILTER TUBE REFILL UNITS
Fulflo FILTERS

Stock the brand proven by demand

COMMERCIAL FILTERS CORPORATION
2 MAIN STREET, MELROSE 76, MASSACHUSETTS

you need a good strong line of equipment to land 'em *that's why*

Petro OIL BURNERS



PROSPECTS? . . . there's a lot of good oil burner prospects around . . . but nowadays, *they have to be sold.* That's where the long, strong Petro line comes in. With Petro oil burners you can take care of little houses, average homes, or huge mansions—small stores, apartments or office buildings, and any industrial need. Regardless of the job, you have just the right burner.

And what selling features you have! Features like the 51-year reputation of Petro dependability . . . the fuel-saving operation of every Petro unit . . . the compactness and attractiveness . . . and the ability to follow fluctuating load demands, and the dependable, trouble-free service. Add to all these the ease of installation and you can see why Petro equipment is easier and more profitable to sell. Write Petro, 3062 West 106th Street, Cleveland, Ohio. (In Canada: 2231 Bloor Street West, Toronto, Ontario) for full information and illustrated literature.

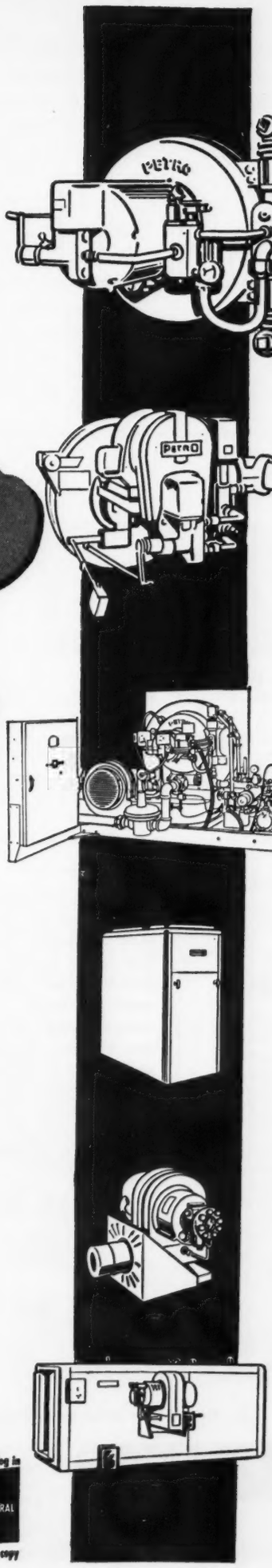
Residential Oil Burners, Oil and Gas Furnaces and Boilers, Industrial and Commercial Oil, Gas and Oil-Gas Combination Burners

PETRO

T.M. REG. U.S. PAT. OFF.

51 YEARS OF LEADERSHIP IN AUTOMATIC HEATING AND POWER EQUIPMENT

see our catalog in S ARCHITECTURAL FILE or write for copy



Industrial Oil Burners
Rotary type. Burn low-cost heavy fuel oil with complete reliability. Oil and oil-gas models for every industrial need. Capacities up to 200 gallons per hour.

Combination Oil-Gas Burners
This commercial industrial burner is the answer to seasonal fuel shortages. Makes possible advantages in economical fuel buying.

Complete Packaged Unit
A complete combustion system in which all elements are completely balanced and integrated. Saves installation time and cost.

Residential Furnaces and Boilers
Real fuel savers. Made in popular sizes to fit the heating needs of homes of from 4 to 10 rooms.

Conversion Units
Efficient, trouble-free oil burners for home and commercial use. Capacities up to 20 gallons per hour.

Horizontal Furnace
Hang it or hide it—this winter air conditioner fits anywhere. Available in 5 models from 80,000 to 180,000 Btu's (output at bonnet).

fuel oil & oil heat

January 1, 1946 through December 31, 1953, the latter tabulation based upon a varying sample which includes sales to wholesalers as well as retail dealers. This shows that during the eight year period 4,856,034 pot type space heaters were reported.

The Institute estimates that the 15 contributing manufacturers who submitted their sales to retail dealers in 1953 represent at least 82% of the industry's total factory shipment of pot-type oilburning space heaters.

During 1953 the New England states accounted for 2.1% of the total units sold to retail dealers; 11.8% in the Middle Atlantic states; 30.3% in the South Atlantic; 45.1% in the Midwest; 3.5% in the South Central states; 1.8% in the Mountain states and 5.4% in the three Pacific states.

Distribution from 1946 through 1953 was divided percentagewise in this way: New England, 3.6%; Middle Atlantic, 11.4%; South Atlantic, 19.0%; Midwest, 47.2%; South Central, 8.1%; Mountain, 3.5% and Pacific, 7.2%.

The tabulation shows retail sales to dealers by factories during 1953 and sales, which include those made to wholesale outlets, from 1946 through 1953.

DISTRIBUTION OF POT TYPE OILBURNING SPACE HEATERS

	*Year 1953**	*Jan. 1, 1946 through Dec. 31, 1953†*
Maine	1,582	35,580
New Hampshire	630	16,265
Vermont	912	18,967
Massachusetts	1,692	54,214
Rhode Island	791	19,314
Connecticut	1,402	32,340
NEW ENGLAND	7,009	176,680
New York	12,855	202,429
New Jersey	1,084	57,256
Pennsylvania	13,072	144,618
Delaware	1,993	20,398
Maryland	7,177	99,773
Dist. of Col.	2,193	30,119
MIDDLE ATLANTIC	38,374	554,593
Virginia	17,713	189,518
West Virginia	724	17,559
N. Carolina	37,591	327,442
S. Carolina	13,883	126,909
Georgia	9,274	108,699
Florida	19,182	154,203
SOUTH ATLANTIC	98,727	924,330
Michigan	27,834	334,579
Ohio	20,011	223,565
Indiana	19,603	244,747
Illinois	23,745	401,219
Wisconsin	11,444	173,923
Minnesota	8,220	221,859
Iowa	10,616	206,956
Missouri	15,264	235,833
Kansas	778	53,007
Nebraska	3,364	82,178
S. Dakota	3,299	57,500
N. Dakota	2,750	48,695
MIDWEST	146,928	2,284,061
Kentucky	4,734	67,360
Tennessee	5,327	128,489
Alabama	828	51,057
Mississippi	48	20,239
Arkansas	357	32,844
Louisiana	2	14,134
Oklahoma	69	21,645
Texas	62	56,836
SOUTH CENTRAL	11,427	392,604
Montana	1,064	30,263
Idaho	2,976	34,117
Wyoming	74	10,341
Colorado	388	43,497
Utah	784	22,903
Nevada	390	10,383
New Mexico	34	11,622
Arizona	171	9,200
MOUNTAIN	5,881	172,326
Washington	11,110	160,113
Oregon	5,974	113,095
California	456	78,232
PACIFIC	17,540	351,440
UNITED STATES	325,886	4,856,034

* Data for calendar year 1953 covers sales to retail dealers only.

† Based on a varying sample which includes sales to wholesalers as well as retail dealers.

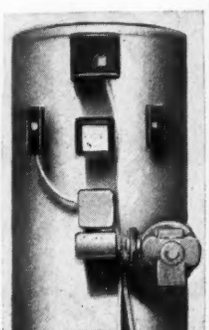
Above statistics compiled by Institute of Cooking and Heating Appliance Manufacturers, Washington 8, D. C.

The Bethlehem

Beth-Pak

OIL HEAT *package unit*

HAS ALL THE FEATURES YOUR CUSTOMERS WANT!



- pre-wired and pre-assembled
- easy to install
- fully automatic
- low operating cost
- plenty of heat and hot water
- quiet operation
- compact—56" high, 22" wide
- quality made throughout
- unmatched in performance

Can't be Matched For Small Home Heating!

The Bethlehem BETH-PAK is a complete plant-assembled boiler-burner unit combining an upright boiler built in accordance with ASME specifications with the dependable Bethlehem Crusader Burner. It is shipped with controls, burner, and jacket completely assembled.

With a gross output of 117,000 BTUs and a net of 79,000 BTUs, the Beth-Pak will adequately cover a home requiring 400 sq. ft. of standing radiation and at the same time supply instantaneously sufficient domestic hot water. It can be cleaned in a few minutes and all accessories which may require service are mounted in the most accessible position.

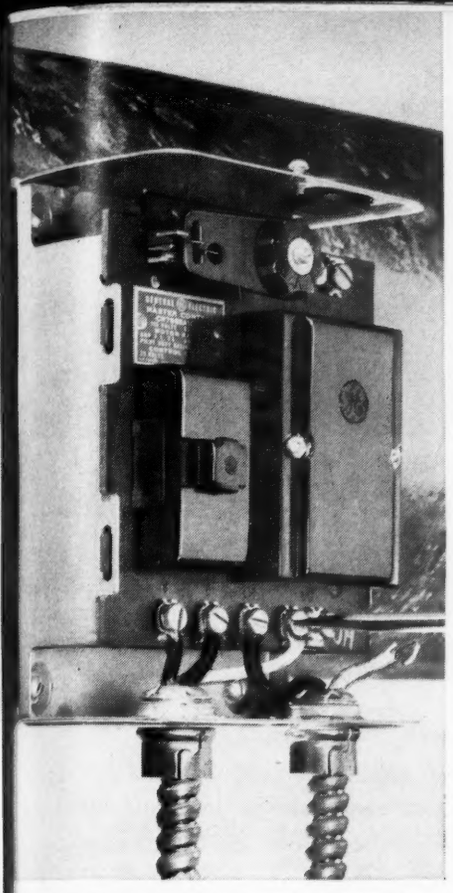
Standing 54 inches high, having an outside jacket diameter of 24 inches, the Beth-Pak occupies a minimum of floor space, adapting itself ideally to the small home.

The Bethlehem BETH-PAK is a BIG PROFIT MAKER for You, Mr. Dealer!

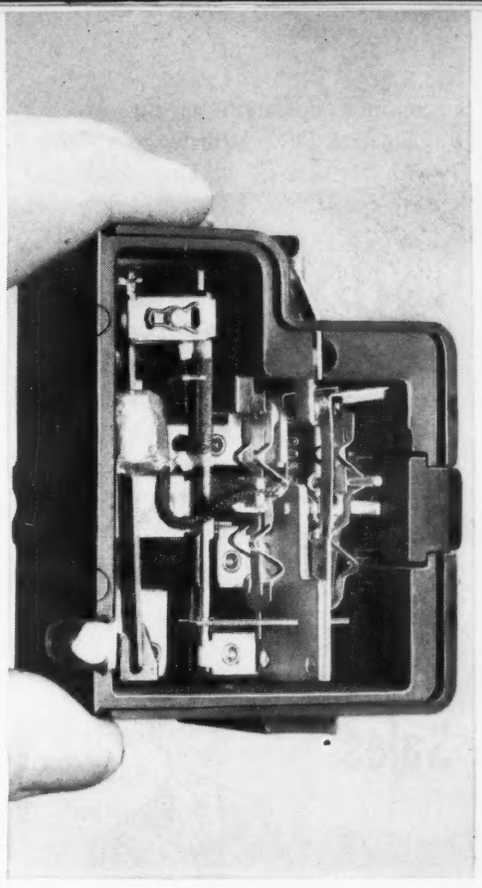
Wire or write today for full facts about the Bethlehem Beth-Pak Franchise.

BETHLEHEM FOUNDRY & MACHINE CO.
BETHLEHEM, PA., U. S. A.

Beth-Pak is made by the manufacturers of the famous Bethlehem Dynatherm and Crusade-a-therm package units.



PLENTY OF WIRING SPACE and a convenient, clearly marked terminal board are provided on the new stack-mounted G-E Master Control. A rubber-grommeted opening at the top permits entry of the thermostat wires and two conduit openings at the bottom are provided for the line voltage cables. A nickle-plated radiation shield protects the control from the stack heat.



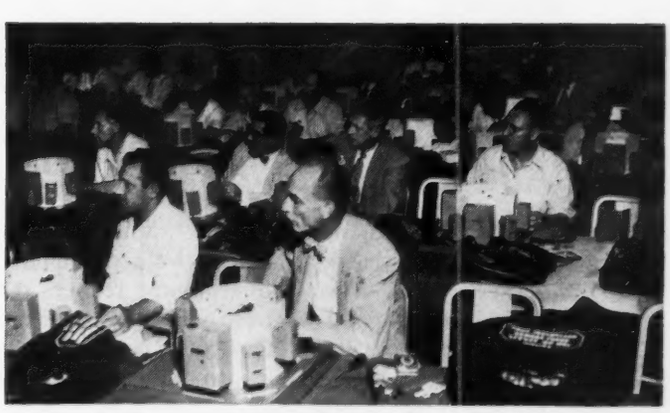
PRESET AT FACTORY, thermal timer on new G-E stack switch is independent of flame detector action—never needs adjusting on-the-job. Timer is not affected by ambient temperature variations outside the control. A timed scavenging period purges the combustion chamber of gases and fumes after each shut down. Permanently fixed timing is provided by the ignition and lockout timers.

UNIT TYPE ASSEMBLY includes new combination transformer relay. Since all adjustments are factory sealed, the possibility of trouble is decreased. Simplified construction and reduced number of parts means less weight and decreased strain on stack. No lubrication of parts is required. A snap-on cover is easily removed.

the New G-E Oil Burner Controls

ATTEND THE G-E SERVICE SCHOOL

The G-E service school is a popular take-apart product discussion of the entire line of G-E heating controls—including a 20-minute sound moving picture trip through the G-E control factory. This demonstration puts a complete set of G-E heating controls in front of each dealer to assure thorough familiarization. A general question and answer period after each school assures that all questions are answered satisfactorily by a G-E application sales engineer. Watch for announcement at your G-E heating control Servicing Distributor.



Progress is our most important product

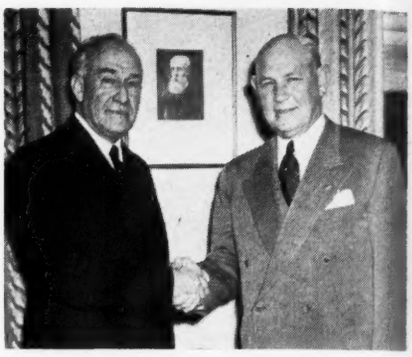
GENERAL ELECTRIC

Worthington acquires the Assets of Mueller Furnace

ON FEBRUARY 25 Harold P. Mueller, president, L. J. Mueller Furnace Co. and Hobart C. Ramsey, president, Worthington Corp., announced an agreement to transfer net assets, name and goodwill of Mueller to Worthington in exchange for Worthington common stock. A special meeting of Mueller stockholders has been scheduled to vote upon the proposal.

Mueller's plant and facilities are to continue operation as the Mueller Climatrol Div., Worthington Corp., with the entire working force and management retained in their present positions. The merger unites two leading manufacturers, Mueller in the home heating field and Worthington in airconditioning. Mueller products will be produced as before in Milwaukee and Worthington will maintain its production facilities for airconditioning equipment at Holyoke, Mass. and Decatur, Ala.

Mueller Climatrol's 97 years of heating and manufacturing experience is devoted to its line of furnace and boiler-burner units and unit heaters for residential and commercial establishments. Worthington, founded in 1840, manufactures a wide range of machinery and equipment for homes and industry, including airconditioning units.



Harold P. Mueller, *Sr. (left) and Hobart C. Ramsey as the sale was completed.*

Commenting on the proposed merger, H. J. Mueller described Mueller's experience in residential heating and Worthington's background in cooling and airconditioning as providing "an excellent foundation for expansion."

❖

Survey shows Owners prefer small oil Tanks

ABOUT 40% of the nation's fueloil distributors use bracket pricing for fueloil to stimulate the use of larger consumer tanks; the other 60% do not.

In an effort to learn whether it should inaugurate such a system and what the customer reaction might be the Standard Oil Co. of Ohio recently surveyed customers in one of its major markets, Cincinnati. Professional interviewers questioned 800 fueloil customers in that city. Each account had a 275 gallon tank and was using upward of 1,500 gallons of furnace oil annually.

After explaining the program of price differentials as used in some other markets, and also the advantages of larger storage in being independent of supply conditions, the householders were asked if they would put in another 275 gallon tank if they were given a half cent lower price for large deliveries. The ratio was nine-to-one against it. In other words, only 10%

An Important Extra
that means Extra Sales

...And Only Sinclair has it!

SuperFlame containing RD-119®, Sinclair's amazing rust inhibitor, helps prevent rust-clogged filters and burner nozzles when used regularly, reduces service calls... builds good will with your customers.

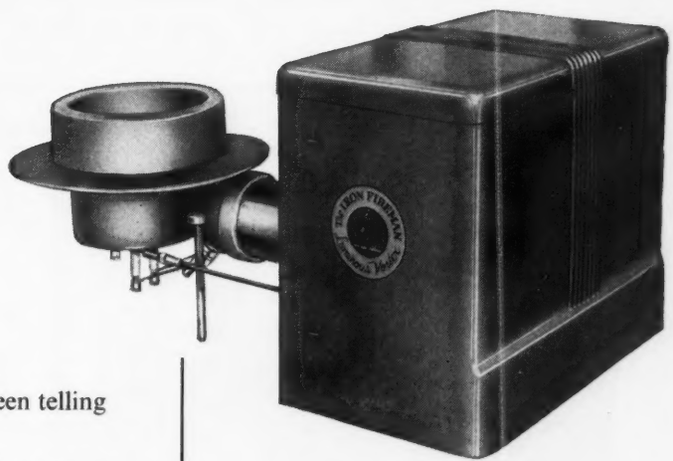
Sinclair SuperFlame, the Anti-Rust Fuel Oil with RD-119 is really different – so different it's patented. (U.S. Pat. No. 2,594,266)

SINCLAIR
Fuel Oil with RD-119

Super Flame ®

advertising like this can help you sell

. . . when you're a dealer for famous IRON FIREMAN oil heating equipment



For 31 years Iron Fireman has built the finest in automatic heating equipment which is used today by hundreds of thousands of people. And every year since 1925, consistent national advertising has been telling the Iron Fireman quality and comfort story.

The facts have been well received, too. For today, many prospects for new heating equipment—whether residential, commercial or industrial—naturally turn to Iron Fireman. Through long years of association, both with Iron Fireman advertising and highly satisfied Iron Fireman customers, the public has learned that Iron Fireman *really means* dependable performance and efficiency.

Why not take advantage of the enviable reputation for quality and performance that Iron Fireman has built, over the years? It will help you increase your sales volume and your profits. You will receive strong company backing in local advertising, merchandising aids, sales training and engineering counsel. Write for complete information. The Iron Fireman Manufacturing Co., 3089 West 106th St., Cleveland 11, Ohio.

TOMORROW'S HEATING STANDARD—TODAY!

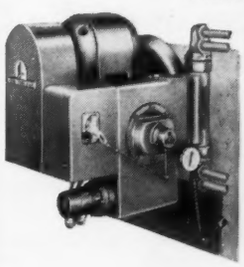
A thermostat in every room

Iron Fireman's newest heating development—revolutionary SelecTemp—has again proved the value of constant engineering research. SelecTemp at last brings to *people of moderate means* an ideal heating system with *individual room control.* SelecTemp's precise room modulation exactly counterbalances both heat losses and gains, to automatically maintain *any temperature* in *any room.*

RADIANT VORTEX OIL BURNER

Iron Fireman's swirling vortex of precisely metered air and fuel spray forms an intense bowl-shaped flame *at hearth level* (and *not* in the heat-smothering ash pit). Penetrating radiant heat is directly absorbed by the furnace's primary heating surfaces. More heat goes to work; less up the chimney!

INDUSTRIAL ROTARY OIL BURNER



This horizontal rotary oil burner handles the most variable oil viscosities, yet feed rates never deviate more than ½ of one per cent of setting. Its amazing Oil Volumeter efficiently fires any oil from No. 2 to No. 6 without adjustment. Greater economy; greater efficiency.

IRON FIREMAN OIL FURNACES

Complete warm air heating units, automatically controlled. Large secondary heating surfaces trap heat normally lost up the flue. Five sizes, with capacities ranging from 65,000 to 160,000 Btu/hr. at bonnett.

FIREMAN

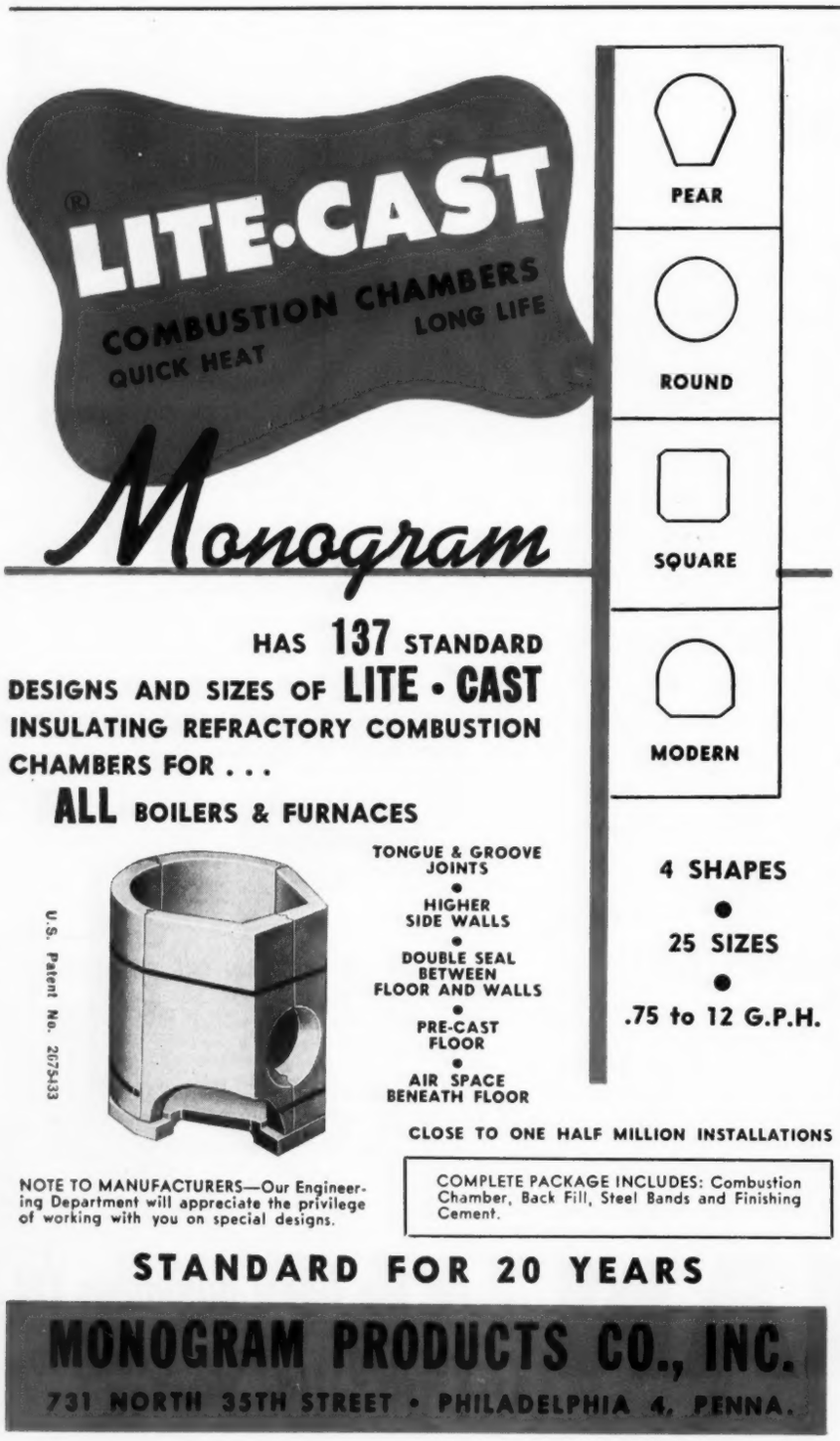
. . . for the finest automatic OIL heating . . . gas and coal, too

were willing to make the small investment for the extra tank.

The reasons were the usual . . . might move, were renting, no room for it . . . that is from those who had reasons. Most folks, however, simply said that their past service had been good, they had suffered no runouts and they saw no sensible reason for more storage. Some accounts burned as high as 2,700 gallons, getting 14-15 deliveries a year but still voted to stay with the small tanks.

Sohio found in its records that 40% of its Cincinnati customers now have storage capacity of 500 gallons or above. For the present at least, the idea of delivery differentials has been abandoned, that is to say below full transport drops to commercial accounts.

The Company, of course, was not in position to survey prospective buyers of oilheating installations. There the vote would probably have been stronger for large tanks if a lower oil price were offered.


LITE-CAST
COMBUSTION CHAMBERS
QUICK HEAT
LONG LIFE
Monogram
PEAR
ROUND
SQUARE
MODERN
HAS 137 STANDARD DESIGNS AND SIZES OF LITE • CAST INSULATING REFRACTORY COMBUSTION CHAMBERS FOR . . .
ALL BOILERS & FURNACES
U.S. Patent No. 2675433
TONGUE & GROOVE JOINTS
HIGHER SIDE WALLS
DOUBLE SEAL BETWEEN FLOOR AND WALLS
PRE-CAST FLOOR
AIR SPACE BENEATH FLOOR
4 SHAPES
25 SIZES
.75 to 12 G.P.H.
CLOSE TO ONE HALF MILLION INSTALLATIONS
NOTE TO MANUFACTURERS—Our Engineering Department will appreciate the privilege of working with you on special designs.
COMPLETE PACKAGE INCLUDES: Combustion Chamber, Back Fill, Steel Bands and Finishing Cement.
STANDARD FOR 20 YEARS
MONOGRAM PRODUCTS CO., INC.
731 NORTH 35TH STREET • PHILADELPHIA 4, PENNA.

Minnesota and Dakota Farmers list Purchases

FARM FAMILIES in Minnesota and the Dakotas have reported their buying intentions for 1954 to the Research Department of *The Farmer,* St. Paul, Minn. Based upon questionnaire returns circulated among representative samples of the magazine's circulation in each locality, the preferences were projected to apply to the 179,101 farm families in Minnesota and the 131,853 farm families in the Dakotas.

In Minnesota 8,928 of the farm families indicated their intention to purchase a basement heating system in 1954. Of these, 4,726 will be fired with an oilburner, 2,889 will use coal or wood as a fuel and 1,313 will use gasburners.

In the Dakotas, 11,196 farm families are ready to install central heating this year, with 7,256 families saying they will purchase oilfired equipment, 2,488 will use coal or wood and 1,452 will arrange for gasfired equipment.

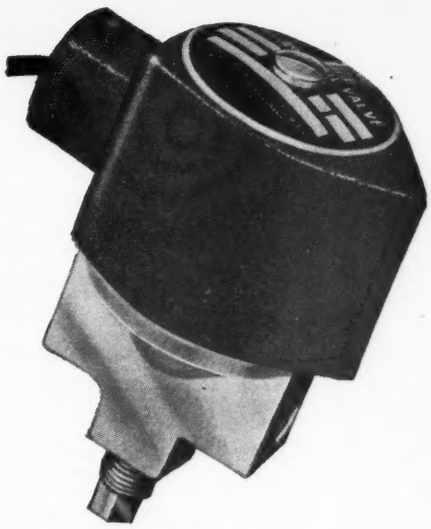
Additionally, 8,403 families intend to buy oilfired space heaters in Minnesota and there is an indicated market this year for 4,768 of these units in the Dakotas.

❖

Oilburner Installers get Maine electrical Licenses

AN OPINION given by the Attorney General of the State of Maine on March 2, which expressly overruled any inconsistent prior opinions, permits the Electricians Examining Board of the Office of the Insurance Commissioner, State of Maine, to issue electricians' licenses to experienced oilburner installers without examination. To qualify oilburner installers must have been in such business within the state for at least two years prior to June 30, 1953.

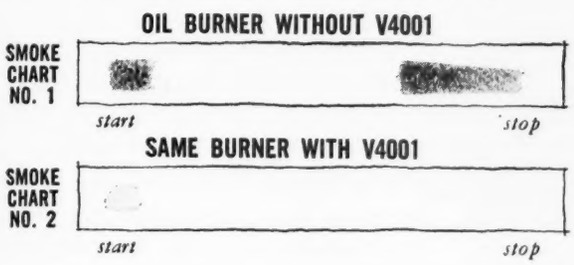
The opinion read: "Under the 'grandfather' clause, the Board may grant a license to any person who presents satisfactory evidence that he has engaged in the business of making electrical installations in any or all of the following fields, namely: heating, lighting and power within the State of Maine for at least two years prior to

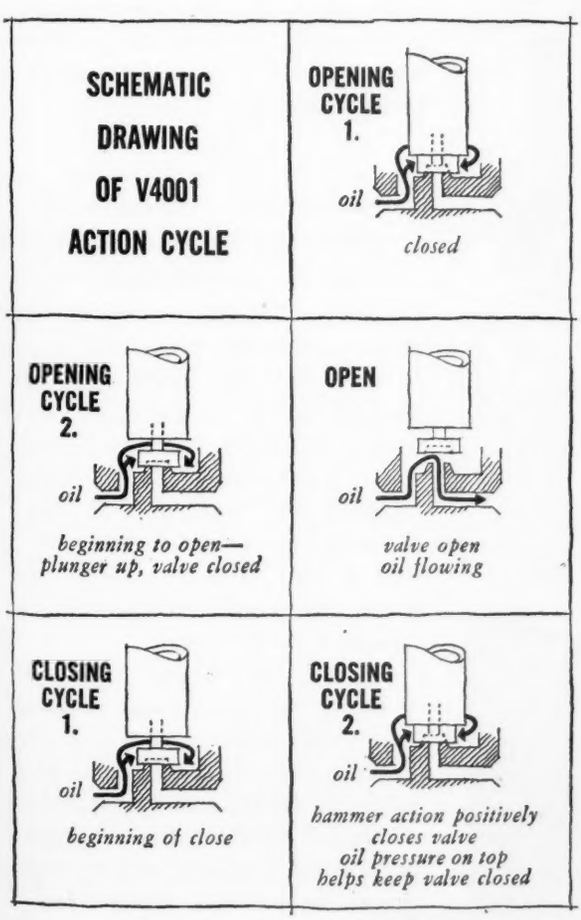


V4001 Delayed Opening Oil Valve

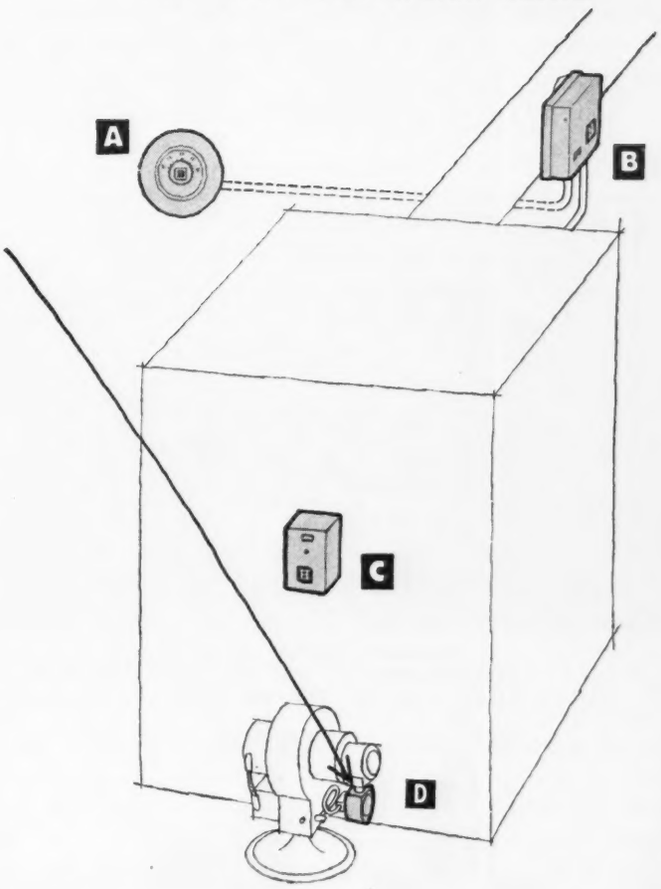
Permits burner motor and ignition to operate *before* valve opens. Spring loaded. Fits any standard oil pump. Mounts in any position.

·Gives smooth clean start: instant, clean stop





Honeywell makes control systems for any type heating plant, any fuel. Here's a typical All-Honeywell Control System for an oil-fired hot water conversion burner



A **The Honeywell Round.** *A new mercury switch thermostat.*

B **Protectorelay.** *Comes in 3 models—RA116A, RA117A, RA81/*

C **Immersion Aquastat, L444.** *Easy to install and adjust.*

D **V4001 Delayed Opening Oil Valve.** *(See illus. above).*

For complete information on the above system, individual controls or other Honeywell Control Systems, contact your local Honeywell office, or write Honeywell, Dept. FH-4-69, Minneapolis 8, Minnesota.

MINNEAPOLIS **Honeywell**

First in Controls

H HONEYWELL

112 OFFICES ACROSS THE NATION

June 30, 1953. As used here, 'installations' include installation, repairs, alterations and maintenance, or any of them."

Qualified dealers must file applications for an electrician's license with the board prior to June 30, 1954. Annual fee is $5.00. Dealers who do not qualify, of course, must pass the required written examination.

When a conflicting opinion was rendered in January, a group of Portland, Me. dealers organized Fuel & Heating Equipment Dealers, employed counsel and obtained a hearing before the Attorney General. The March 2 opinion was a result.

However, other inequities in the bill are being protested, including those that require only licensed electricians for repairing, altering or maintaining the electric wiring and electrical controls on an oilburner. This now has become the objective of the Fuel & Heating Equipment Dealers, which has set up offices at 142 Free St., Portland.

The group is soliciting contributions from Maine dealers to finance a campaign to amend the licensing regulations during the January 1955 session of the Maine Legislature.

Firomatic
PRODUCTS
VALVES • FUEL OIL FILTERS • SAFETY DEVICES
Firomatic Fusible and Non-Fusible Valves
FOR OIL BURNING and GAS FIRED INSTALLATIONS
More Than 80 Different Valve Types Available
FIROMATIC GLOBE VALVE
All Firomatic Valves have Self-Adjusting Ttuffing Box and Back Seat Feature Prevents Leaks at Valve Stem.
FIROMATIC OFFSET TANK VALVE
Available in 24 Different Types. For Use On Any Oil Tank or Drum.
FIROMATIC TANK GAUGE
Two Side Indicator Vision. Available in 1½" and 2".
FIROMATIC FUEL OIL FILTER
Greater Capacity . . . More Filtering Area. Adaptable For All Service.
THE MORSE-SMITH-MORSE CO.
165 Dexter Avenue
Watertown, Mass.
SOLD NATIONALLY BY JOBBERS ONLY

Government reports record construction Expenditures

PRELIMINARY ESTIMATES of the U. S. Dept. of Labor and the U. S. Dept. of Commerce report record high expenditures for new construction during February. Totals declined less than seasonally to $2.3 billion, a projected annual rate of well over $36 billion.

During the first two months this year total expenditures for all new construction reached $4.75 billion, 2% more than last year; new private construction expenditures totaled $3.36 billion, 5% above January-February 1953. Outlays for new public construction trailed the first two months of 1953 by 4%.

Private residential building, highway construction and most types of private nonresidential building showed less than seasonal declines in February; public school, hospital, sewer and water facilities construction rose contraseasonally. Decreases in February were about normal for privately owned public utilities, but more than usual for stores, military installations, conservation and development work.

Chamber sees commercial construction Boom ahead

COMMERCIAL CONSTRUCTION, the Chamber of Commerce of the United States predicts, this year faces a boost of 10% above last year's peak. All kinds of commercial construction will share in this trend, the Chamber continues, with capital outlay for office buildings, loft buildings and warehouses as a group totaling 15% greater than in 1953, while expenditures for stores, restaurants and garages are forecast to be 5% more.

If hotels, motels and commercial recreation buildings are added to these main classifications, commercial construction totals in 1954 will reach $2.4 billion, the Chamber says, compared to $2.2 billion in 1953. Office building expansion and shopping center construction characterize the current boom.

Why 'not percentage Margins?'

Profit Requirements and financial Standards through percentage Evaluation

by
F. Raymond Kraemer*

Last month Howard H. Ingersoll, Atlantic Refining Co. executive, took the other side of this interesting topic in an article, "Why percentage Margins?"

EXACTLY SIX YEARS to the day have passed since I first prepared the outline of an introductory talk which I made before the Empire State Petroleum Association meeting in New York City, April 20th, 1948 on the subject of "Petroleum Jobber and Distributor Profits," advocating establishing determination of Profit Requirements and Financial Standards for Petroleum Marketing through PERCENTAGE EVALUATION.

At that time I stated it would take at least five years for any consequential number of petroleum marketers to grasp the basic philosophy underlying this concept of marketing, recognizing the traditional characteristics of the units-per-gallon formulae and knowing that it had taken me a number of years to develop the percentage method to the point where it could be brought before the industry.

This prediction developed to be quite prophetic. Since that time there has been considerable writing, discussion and speech making regarding this subject. As was to be expected, quite some misunderstanding developed regarding application of the percentage principle, manifesting itself incorrectly in reference to this plan as primarily a program for increase in unit-per-gallon margins and, somewhere along the line, the erroneous coining of the title "Percentage Mark-Up" which has tended to divert thinking from the main theme of this philosophy of petroleum marketing.

F. Raymond Kraemer

As a result of this misinterpretation, division of thinking has developed along three general lines.

In the first group are those who have recognized the soundness of determining the profit requirements and financial standards for petroleum marketing through percentage evaluation and who are quite vocal in their insistence that this program be given every possible consideration.

The second group are those who oppose it, unfortunately amongst whom are a number of integrated company people whose thinking, I believe, is influenced by the feeling that this is just another approach to perhaps unjustified requests for larger margins. In this second group I am sure there are those at the integrated company as well as at the distributor company level who have not adequately informed themselves regarding the positive possibilities of this program.

The third group consists of those in all segments of petroleum marketing who have not taken the time to give this any real worthwhile consideration or study and consequently cannot and probably should not express an opinion regarding its advantages or disadvantages until they inform themselves.

Since it is my feeling that it is most important for the greatest possible number of people in the industry to understand at least the basis of this plan, I should like to review some of its characteristics.

In my talk before the Empire State Petroleum Association meeting April 20th, 1948, I stated that during my 25 years association with the petroleum industry, 10 years with a major company and 15 years as Consultant to distributors, jobbers and integrated companies, I had observed that the question of what is an adequate profit for petroleum marketing had always been a subject of considerable concern to the several segments of the industry. There never had been a real understanding of the actual profit requirements of the distributor and jobber. Thus we had before us the problem of scientifically projecting the financial standards to which the business of marketing petroleum products should conform to determine what profit should really be enjoyed to make this business a stable venture, justifying capital investment, operating expenditures and effort that can be justified only by a long range, sound, financial program.

It is most important to a proper understanding of this percentage program to recognize in the first place that financial standards and profit requirements for satisfactory operation can be developed only in geographical areas limited to similarity of petroleum marketing operation.

*Financial consultant, Mineola, N. Y. Mr. Kraemer is a member of the National Association of Credit Men, New York Credit & Financial Management Association, a charter member of the American Petroleum Credit Association, secretary and treasurer of the Eastern Petroleum Credit Managers and a past president of the New York Petroleum Group of Credit Managers.

This is important, as the erroneous belief has developed that the proponents of this plan advocate one set of "Percentage Margins" to reflect a uniform percentage of gross profit for petroleum products over wide areas. Nothing could be less consistent with the principles of this program.

Essential to recognition of the merits of the percentage plan is to know that it does not contemplate fixed percentages of financial factors over protracted periods but anticipates conformity with changing economic conditions.

As an example, several years ago I recommend a 33% gross profit on dollar sales for retail fueloil in Nassau County. Because of changing economic conditions I revised my conclusions in 1953 to recommend a 31½% gross profit for retail fueloil. After consideration of current operating trends and economic changes I could very well suggest to my clients a change in the 31½% figure but it would be tied into the financial characteristics of their businesses and economics in this area and not to gallons, gallonage sales or units-per-gallon.

As a result of our consideration of all factors, we can say that in Nassau County, N. Y., a distributor requires at this particular period the following percentages of gross profit in relation to dollar sales—

Retail fueloil	31½%
Wholesale fueloil	13%
Gasoline	21%

Another matter of extreme importance to recognition of the positive characteristics of this program is the fact that those petroleum marketers who are sympathetic toward it were the first to recognize that uniformity of accounting is absolutely essential to a predetermination of standards of performance, to be evaluated in percentages of dollar sales, and from which percentage of gross profit and other profit factors might be determined.

Evidence of this awareness of the need of adequate uniform accounting is found in the fact that the Empire State Petroleum Association had a "Uniform Accounting System" Manual prepared and published in October, 1951 and the American Petroleum Institute, Division of Marketing, issued in July, 1953 "A System of Accounting for Distributors and Jobbers of Petroleum Products."

Here we have concerted effort to get to the fundamentals involved in developing understanding regarding the profit requirements and financial standards of this segment of the industry.

If this effort is properly recognized by distributors and suppliers alike and is implemented by application of these principles of accounting to individual operations—and the results of these findings are properly analyzed with sepect to financial fundamentals—there is no question in my mind that the time will arrive when profit requirements and financial standards will be evaluated in percentages rather than the present units-per-gallon method.

Why do I predict this?

In the first place, here we have an industry second to none in its contribution to the economy of our country wherein, except here in Nassau County, N. Y. it is actually not possible, to my knowledge, at the present time, to secure enough data regarding the financial factors of marketing to reconcile relation of prices, costs of doing business and profits to the general economics of distribution.

This recalls difficulties in price setting not too long ago by governmental authorities because the absence of financial determinations in percentage relationships made petroleum marketing irreconcilably different than distribution in other industries, with resulting confusion and in any number of instances inequitable conclusions.

It is a matter of considerable concern to many thinking people in this industry that the units-per-gallon basis of determining financial factors in marketing continues to engender such discord as to seriously impair the efforts of those responsible for public relations to bring about understanding on the part of the general public that the industry is widespread in its competition, controls and functions.

Such movements as divorcement stem from misunderstanding of profit requirements and financial standards.

Price wars must result from a lack of real knowledge of the impact of such uneconomic practice on the financial factors of petroleum marketing.

These are some of the negative implications of the absence of a reconciliation of distributing prices, costs and profits to percentages of dollars which tend to create a consciousness of gallons rather than the financial requirements of the individual distributor and the integrated company marketing operation.

As I indicated in the forepart of this article, display of statistics, pricing, sales, cost and profit charts and graphs on related economics are impossible in this writing, but for those sufficiently interested in seeking it out, and all marketing people in this industry should be, enough data has been published heretofore to make for understanding of the practical application of determination of profit requirements and financial standards through PERCENTAGE EVALUATION.

A count of our research records indicates no fewer than fifty informative articles in trade magazines on this subject since its introduction in 1948.

I am listing the following few articles which should be reviewed by anyone desiring to acquaint himself with the subject.

WHY PERCENTAGE MARGINS? FUELOIL & OIL HEAT, March 1954. P. 49.

BY PERCENTAGE WE MEAN—*ESPA Magazine*, February 1954. P. 3.

OIL HEATING TRENDS — FUELOIL & OIL HEAT, January 1954. P. 14.

DISTRIBUTION ECONOMICS—*The Oil Daily*, January 7, 1954.

TOWARD THE LIGHT — *ESPA Magazine*, December 1953. P. 3.

PERCENTAGE MARGINS — *National Petroleum News*, April 29, 1953.

PROFIT REQUIREMENTS OF OIL MARKETING —*Fuel Oil News*, April 1953. P. 23.

WHY A MAJOR SWITCHED TO PERCENTAGE MARGINS — *National Petroleum News*, Nov. 5, 1952. P. 37.

MAJORS SHOULD PUBLISH MARKETING COSTS—*National Petroleum News*, Aug. 6, 1952. P. 43.

GOLD IN SOME OF THE HILLS, FUELOIL & OIL HEAT, March 1952. P. 54.

UNIFORM ACCOUNTING SYSTEM DETERMINES COSTS—*National Petroleum News*, Feb. 20, 1952. P. 42.

THERE IS NO SUBSTITUTE FOR FACTS—*The Coastal Oil Way Magazine*, November 1951.

CHARTS AND TEXT ON MARKETING PROFIT REQUIREMENTS—*ESPA Magazine*, December 1951.

FINANCIAL RATIOS FOR MANAGEMENT—FUELOIL & OIL HEAT, March 1951.

PROFIT OBJECTIVES FOR THE DEALER—FUELOIL & OIL HEAT, November 1950.

KNOW YOUR FINANCIAL RATIOS—FUELOIL & OIL HEAT, September 1950.

JOBBER FINANCIAL STUDY REVEALED—*National Petroleum News*, June 22, 1949.

JOBBER PROFIT PROBLEMS NEED CAREFUL STUDY ALONG NEW LINES—*ESPA Magazine*, May 1948.

Part X: Oilburner Control Series

Detroit and Crise

This final article on Design and Features covers two makes

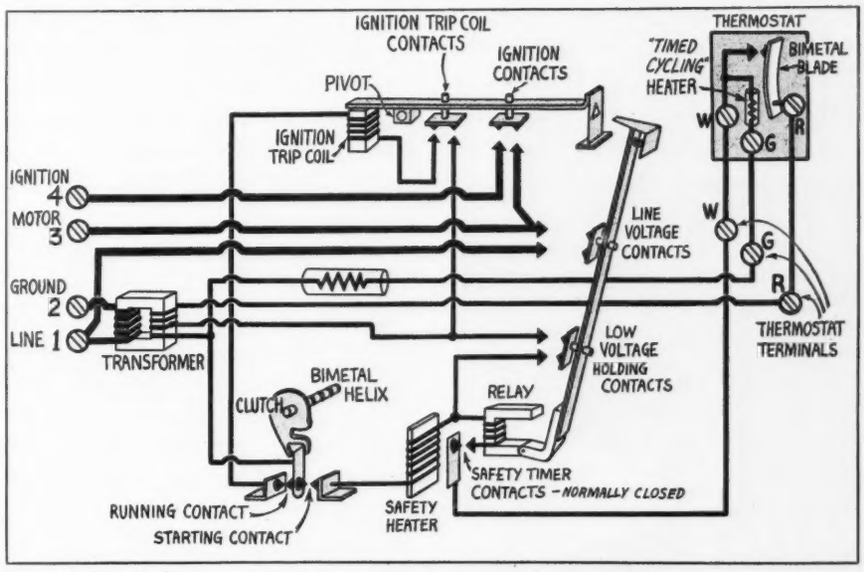
by

J. W. Schulz

YOUR KNOWLEDGE of oilheating equipment has a hole in it, if you don't know that a Detroit stack control has three terminals for its low-voltage thermostat circuit; three low-voltage wires run from a Detroit stack control to its room thermostat. If you are well informed, you know the "why" of this—and you know better than to take up what might appear to be an invitation to use a Series 10 type room thermostat with a Detroit stack control.

Controls are studied and put through their paces in preparation for writing these articles. The Detroit stack control used for this had a neat, clear label under its thermostat circuit terminals that warned: DO NOT USE SERIES 10 CONTROL.

The oilburner controls that bear the Detroit labels are important because, for one thing, no other controls are used in the widely sold line of American-Standard equipment, including the Arcoflame conversion burner and the American-Standard oil-furnaces and oil-boilers fired by integral Arcoflame burners. The Detroit Controls Corporation is, of course, a division of the American Radiator & Standard Sanitary Corporation, manufacturer of American-Standard equipment and Arcoflame oilburners.

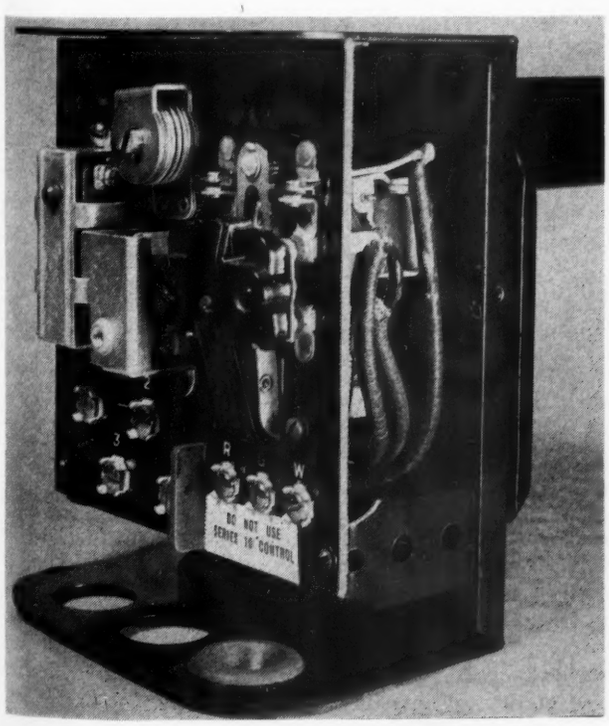


Detroit Controls, *internal wiring of CA-701 stack control for intermittent ignition. Study internal wires of terminal "G," which provides 16 volts for parallel-type heater or gooser in thermostat. In the internal wire that connects the secondary of the transformer to terminal "G" is a protective resistor to prevent damaging the transformer if terminals "G" and "W" are accidentally shorted.*

With Detroit controls used entirely and exclusively for the vastly popular and important American-Standard line of oilheating equipment, no serviceman can say truthfully he's an expert at all makes of burners—unless he knows Detroit controls backwards and forwards. As has been indicated in connection with the use of three wires in the low-voltage thermostat circuit, there's at least one tricky peculiarity to these controls.

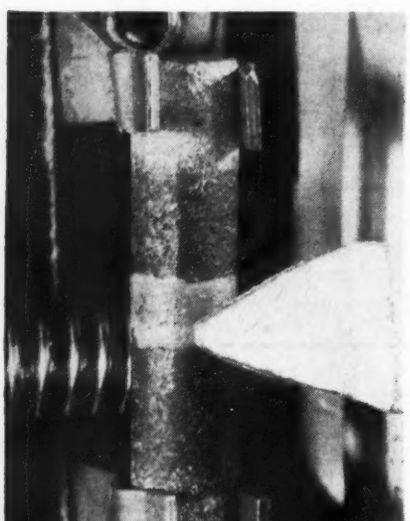
Detroit Controls Corporation was established 'way back in 1877 and gained early fame producing lubricating devices for such machinery as steam engines, air compressors, and locomotives. That's why until recent years it had the name Detroit Lubricator Company, which old-timers at oilheating still tend to use today.

The fame of certain Detroit limit controls for oilburner goes back over years. These controls were used on oilburner jobs back in the twenties—some of them bearing trade names other than Detroit Lubricator's. One type of control, so well designed and



Detroit Controls *CA-701 stack control for intermittent ignition; CA-702 is companion model for constant ignition installations. Relay that starts motor will pull in and start oilburner only when line voltage is above 90 volts—during normal operation of burner will drop out and stop burner if line voltage drops below 73 volts.*

manufactured in the twenties that it still is made in the same form today, was characterized by its rectangular case, its being available with either one or two 10-ampere mercury tubes that were tripped on and off by a powerful bellows, and its adjustable differential. I know dealers who standardized on this model for their commercial-industrial installations and earliest summer-winter hot water jobs back in the twenties, and who still use the identical control today. There's proof in this that in the twenties a control could be excellent to the degree that in 1954 there is no need to improve it!

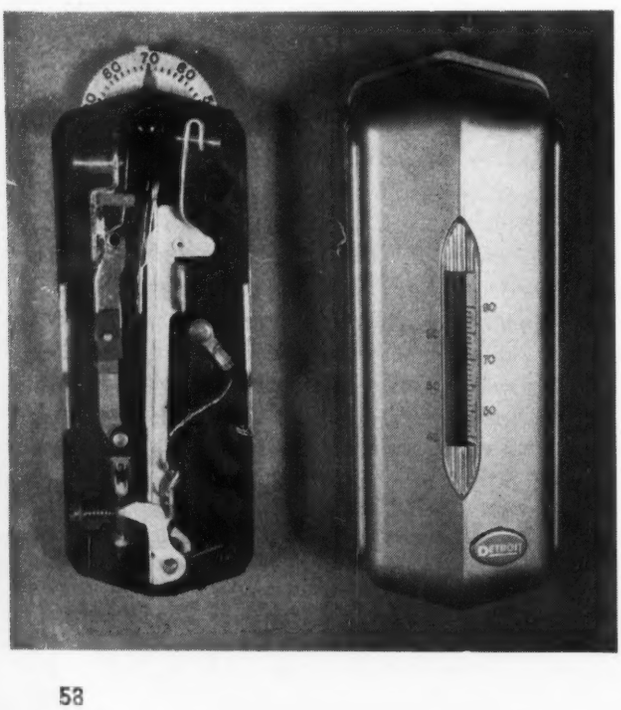


Smallest *cartridge fuse in world? Could be, for its clips are like those of a tiny cartridge fuse. Actually this is parallel-type compensating heater that Detroit Controls enthusiasts declare an all-important part of the thermostat—unique because of the wiring of its heater.*

Men who have studied the earlier articles in this series of articles on controls will find familiar features in the accompanying wiring diagram and photographs that cover the Detroit stack control for intermittent ignition, for though Detroit Controls enthusiasts boast of many fine points—listed later in this article—they do not declare that their stack control is utterly unlike every other make of stack control.

If you have studied every previous article in this series, then, you will have no difficulty understanding the internal wiring of the Detroit stack control, shown in the drawing. This drawing also shows, however, the thermostat circuit arrangement used with this stack control. This arrangement is 100% unique and original to the Detroit stack control, being entirely unlike the thermostat wiring arrangement of any other make-and-model stack control. The use of the three low-voltage wires from the stack control to the room thermostat relates to this.

The Detroit room thermostat is of the low-voltage, single set of contacts, snap-acting type having a dedent magnet to provide the snap action. This is a familiar type of room thermostat in the oilheating industry. Several control manufacturers include a room thermostat of this type in their lines, and it comes close to being the standard type room thermostat for the oilheating industry. It is standard practice to apply an electric heater to such a room thermostat to make it a "heat anticipating" or "self goosing" type that can provide relatively short oilburner "on" and "off" periods. The resultant cycling of the burner is intended to provide smooth, even heating that avoids "cold 70" discomfort. Also it is standard practice to wire the electric heater of such a room thermostat in series with the thermostat's snap-acting contacts so that the heater's temperature is raised by the current that normally flows through the thermostat's contacts when they are closed. Thus low-voltage thermostats having heaters are two-wire type—two wires connect them to stack controls—the heaters in them are series type, and the amperage flow through the heaters is the same as the amperage flow through the two wires and through the contacts of the thermostats.



Parallel-type *compensating heater is featured in this Detroit room thermostat. Term "parallel-type" means this heater is wired in parallel with other loads carried by the low-voltage transformer that provides the 16-volt current for the heater. Adjustment screw near lower lefthand corner of thermostat moves heater towards or away from heat-sensitive bimetal strip of thermostat, increases or decreases effect of the heater.*

Detroit's ideas on providing current for the heater in its thermostat are unique, entirely different from the standardized ideas of all other control manufacturers. Unwilling to use the series idea for connecting the heater, Detroit arranges to run a third wire to its thermostat. The third wire serves only for providing current for the thermostat's heater.

Clarifying this beautifully, Detroit accompanies each of its "Timed Cycling" thermostats with a little instruction tag containing these words:

"READ THIS—This is basically a two-wire snap-action thermostat. RED and WHITE are the operating terminals. GREEN terminal furnishes current to the parallel TIMED CYCLING heater."

After data on control models comes:

"This thermostat may also be used in any two-wire control circuit PROVIDED there is an external transformer, so that the green wire may be connected.

"GREEN WIRE MUST BE CONNECTED OR THERMOSTAT WILL NOT OPERATE PROPERLY. See basic wiring diagram on back of this tag.

"CAUTION: Never connect the Red, White and Green terminals of

this thermostat to the Red, White and Blue of a Series 10 control, or use it in the same circuit with any Series 10 device."

Examining the basic wiring diagram on the back of the tag, you find it shows the secondary of an auxiliary low-voltage transformer (used for the sole purpose of providing current for the heater in the thermostat) connected to the green and red terminals of the thermostat. The tag shows that the primary of the auxiliary transformer receives 115-volt 60-cycle current, but does not suggest suitable transformer capacity or indicate the voltage of the transformer secondary. It turns out, however, that a little bell transformer of about 25-watt capacity is suitable, and that the voltage of the secondary should be 16 volts.

(*Please turn to page* 158)

Crise Controls

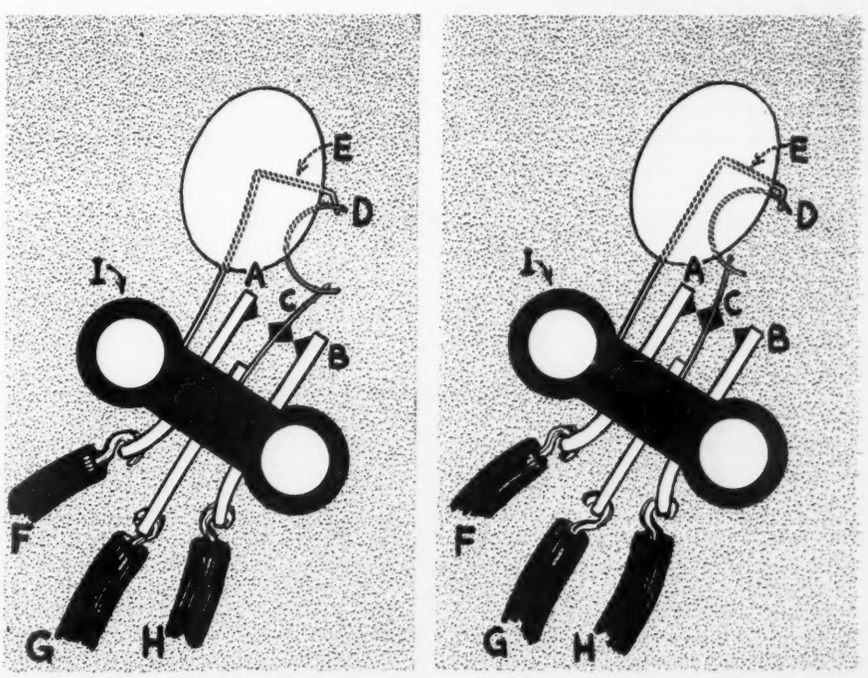
Many readers of FUELOIL & OIL HEAT have the idea that Crise controls are something new. That's understandable, because for years these controls were not used or heard of in the oilheating industry. Only in the past few years have certain highly distinctive limit controls been designed especially for the oilheating industry—by the Crise Controls Division of The Acro Manufacturing Company, Columbus 16, Ohio. At present, by dint of aiming to offer forced-air fan and limit controls to manufacturers and dealers at attractive prices, Crise Controls Division is making a big point of gaining popularity in the oilheating field.

If for years you have known much about all heating system controls, the name Crise is not new to you—for over the years Crise made thousands and thousand of automatic damper control sets for hand-fired coal furnaces and boilers. A typical set included three parts, all designed and made by Crise: a damper motor, spring-return type; an adjustable-differential, snap-acting, two-wire room thermostat; and a "Surf-A-Stat" high limit control.

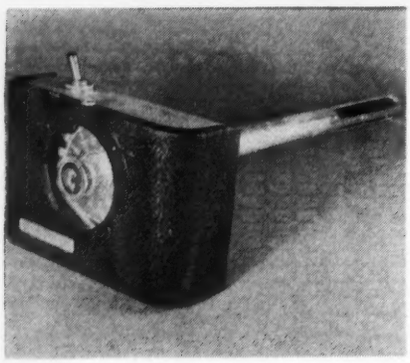
The Crise damper motor that's been available for years has been especially interesting to those who are curious about control devices and like to do experimental and development work, for it is exceptionaly versatile and can do many odd jobs besides opening and closing dampers. It is available in several interesting types, including two-wire reversible, three-wire reversible, and single direction. Its drive sprocket and sprocket chain permit easy application of this control motor to many purposes, from shifting the gph rate of an industrial oilburner to opening and closing a door or window automatically. That makes the Crise motor a delight for experimenters.

The current Crise Catalog No. 51 on heating and airconditioning controls covers a complete line of oilheating controls including low-voltage and line-voltage room thermostats, limit controls for all types of heating plants, and oilburner stack controls of the continuous-ignition and intermittent-ignition types. Not every piece of equipment in the catalog is made in the Crise factory. Following a pattern well established in the oilheating

Exceedingly *compact for a combination circulating-blower control and high-limit control, this Crise FAL-40 is only 2¾" wide, 4" high. Dial is attractive bright red, numbers on it stand out clearly—embossed bright silver. Upper adjusting device, set 175, controls stopping of burner on high limit, works on fixed differential. Lower adjustments, set 125 and 150 here, are starting and stopping temperatures of blower.*



How Crise *attains snap-action for the switches of the controls shown in the photographs. A little semi-circular spring ("D" is at top of it in these drawings) does the trick. In left-hand drawing, spring "E" is to the left of its center position, causing lower end of semi-circular spring "D" to press to right, closing contacts "C" and "B." In right-hand drawing, "E" has been moved slightly to the right by movement of the heat-sensitive bimetal device in the control. Moving to right, "E" causes semi-circular spring "D" to snap closed contacts "A" and "C." Now bottom of semi-circular spring is pressing downwards and to the left. "I" is support for cluster of blades. Wires "F," "G," "H," soldered to contact-strips, run to terminal block.*



Combination control *(circulating blower and high limit), which Crise says is conventional type because it has bimetal helix extending back of case 11". Toggle switch on top permits owner to run circulating blower in summer. This is Crise model FAL-10A.*

Watch-spring *bimetal element, Crise control FAL-20A, a combination control having compact heat-sensitive element. Dial adjustments of these controls can be set easily after loosening one knurled knob. Then you tighten knob to lock adjustments.*

industry, in the case of certain controls Crise has collaborated with another control manufacturer to effect rapid completion of a full line of oilheating controls bearing the Crise label.

Selected for discussion here are warm-air controls that are 100% Crise-designed and Crise-manufactured. They are shown in accompanying photographs. Produced for the modern forced-air field of heating, these controls serve well to represent the Crise recent contributions to oilheating.

These Crise forced-air controls are distinctive in appearance, to start out, for the front of each has a Lucite crystal. This seems to be ornamental only by coincidence . . . though 100% ornamental and attractive it is to-be-sure. Functional objectives of the crystal are: (1) It permits a serviceman to see for which temperatures the control is set—instantly and without removing the cover of the control; (2) A glance through the crystal tells you the temperature of the furnace—at the location of the control's heat-sensitive bimetal element, of course—because the control is a thermometer as well as a controlling device.

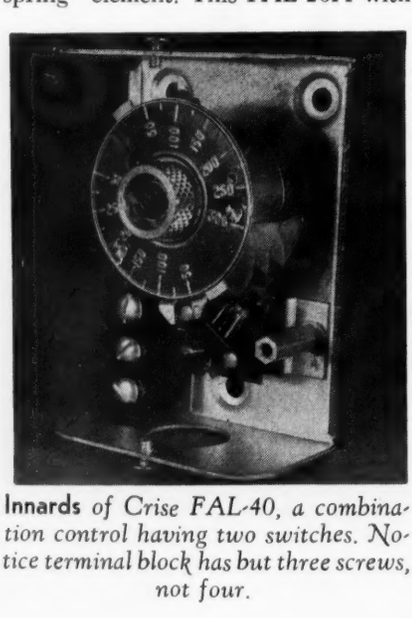
One of the most popular controls in the Crise line is the FOL-60 which can be used as either a circulating-blower control or a high limit control; it has a line-voltage snap-acting switch of the single-pole double-throw type rated for handling 115-volt motors up to ½ horsepower size. The type switch in it and its three terminals permits it to serve as either a blower control or a high limit control, but it cannot serve both functions as it is not a combination control. The popularity of the Crise FOL-60 stems primarily from the fact that it cuts in half the inventory of any manufacturer, distributor, or dealer who stocks both circulating-blower controls and limit controls.

The FAL-10A and FAL 20-A both are combination controls having summer switches that permit furnace owners to turn on their circulating blowers for increasing comfort in summer. They differ in that the FAL-10A has a conventional type bimetal element (a helix, the extreme end of which is about 11" from the back of the control case) whereas the FAL-20A has what Crise terms a "watch-spring" element. This FAL-20A with the watch-spring element is for furnaces that, because of space limitations, cannot be equipped with conventional controls of the bimetal helix type. Before the FAL-20A was produced, Crise engineers declare, this space limitation complication could be solved only by the use of relatively costly capillary control arrangements —they decided to save money for furnace manufacturers by producing the FAL-20A with its compact, watch-spring element.

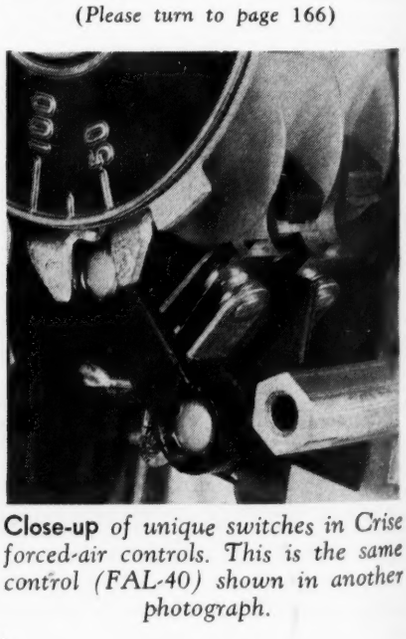
The newest control in the Crise line, reportedly being welcomed enthusiastically by oil-furnace manufacturers particularly, is the FAL-40, which despite its small size is a fully adjustable combination forced-circulating blower control and high-limit control. Being prepared for production right now is a more-or-less deluxe version of the FAL-40.

Permit an oilheating control enthusiast from the Crise factory to tell you what's foremost on his mind, and he will explain that Crise has the aim of using design and production skill to maximum advantage so that top-quality controls can be made available to the oilheating industry at prices that surprise and please. Such a man is particulraly proud to point out, for example, the methods used to test every furnace control prior to shipment. A series of miniature furnaces is used; each includes an electric heater element and a blower. Without exception, every control to be shipped is put through its paces under actual

(*Please turn to page* 166)



Innards *of Crise FAL-40, a combination control having two switches. Notice terminal block has but three screws, not four.*



Close-up *of unique switches in Crise forced-air controls. This is the same control (FAL-40) shown in another photograph.*

Training and grading Servicemen

At Ballard Oil, Portland, Me., They learn more while They earn More

by
Ray Horan

JUST A SHORT TIME after the British were driven out of Boston town making that fair city safe for emigrants from Maine, a young fellow by the name of Edward Hacker, fresh out of engineering school at the University of Maine migrated to Back Bay. He dedicated himself to the proposition that all New Englanders should be entitled to keep warm, especially State of Mainers, so he took a job as a serviceman for the Ballard Oil Burning Equipment Co. in Boston.

That was in 1921 and he says, "The British had only been gone for 143 years at that time and things were just getting back in shape again." After a few years in Boston he returned to Maine and made it his business to see that the people of Portland and nearby communities got the best automatic oil heat possible. He liked the oilburner business and wanted to do something about it. So with the late Edward A. Taber, he bought the Portland branch of Ballard Oil Burning Equipment Co., and formed Ballard Oil & Equipment Co. Mr. Taber died in 1946.

During the past 25 years a Ballard chapter has been written in the book of progressive business that makes that old story about Maine conservatism sound weaker than it used to be. Hacker says, "State of Mainers aren't really slower than other people; they just talk slower to entertain the foreigners." And the Down East Yankee knows whereof he speaks. His native home is Brunswick, Maine, and surrounding territories of Orr's and Bailey Islands where the salty sea captains are noted for their Down East twang, sometimes exaggerated to amuse out-of-staters.

Having proven that starting in the oilheating business in the service department is no handicap to becoming a highly successful businessman, Ed Hacker probably is more sensitive about his service help than some dealers with less mechanical background. Moreover he's aware of the fact that a successful oilheating business is built on service—service in all departments, but mechanical service comes first. That is why it is no surprise that he has developed over the years a training system and procedure that is unique as well as successful.

Hacker believes that training of a service and installation man should be a step-by-step process with the man becoming highly capable in one phase of the work before he proceeds to the next step. Consequently he has set up his training on that basis and it carries over many months for the new man and never stops for the older employee until he has obtained the top rating of Foreman 1st Class.

Hacker hires his service personnel between the ages of 22 and 24 years old. He says it's more difficult for the older fellows to learn. Having acquired the candidate he starts him out immediately as an installer's helper, but the young man enrolls at once in the training course which includes school one night a week and home study. As the new employee progresses in his studies he is given an examination. When he passes, he is promoted to Service Mechanic 3rd Class and is given a raise in salary.

At each stage of his advancement in knowledge and ability, always determined by examination, he is upgraded and given an additional salary increase.

We believe that many dealers may be interested in the Ballard Company's rating system which follows:

The thoroughness with which the Ballard Company has worked out and operated its training and compensation program for installation and service personnel is indicative of the manner in which all branches of the business are operated. At every turn one sees evidence of Hacker's great respect for education. He sees to it that his employees at all levels take advantage of industry school and major oil company training facilities. Competitors are visited from time to time to keep well informed on the other fellow's point of view. Hacker says competitors like to

Letting the public *know how the company functions for its benefit is the creed of Edward Hacker. Kay Connolly is in charge of advertising, public relations.*

Ballard Job Ratings Specifications

(a) Helper I

1. Shall be capable of performing simple mechanical operations such as cutting and threading pipe, pouring concrete, cutting of masonry, and assisting an installer or service mechanic with the work being performed.

2. Shall be mechanically inclined, willing to do as ordered, and in general of suitable physical and mental ability to perform the simple tasks of a mechanic's helper.

3. No written or demonstration examination shall be required for this job rating. It shall be the responsibility of the service manager to select and hire men of this category on the basis of his own judgment.

(b) Service Mechanic III

1. Shall be capable of and shall satisfactorily demonstrate the complete disassembly of a conversion oilburner and all of the component parts normally disassembled in field service, and the reassembly of these component parts into an operating unit.

2. Shall have and shall satisfactorily demonstrate the basic knowledge of the operation of the component parts of a conversion oilburner, such as pump, motor, transformer, fan and air control assembly, and nozzle and electrode assemblies.

3. Shall have and shall satisfactorily demonstrate a working knowledge of the function of simple oilburner controls, such as constant and intermittent type protectorelays, thermostats, and limit and low water cut off controls.

4. Shall have and shall satisfactorily demonstrate a working knowledge of simple combustion on low firing rates and shall be capable of the solution of simple combustion problems which present themselves as a routine service matter in day to day oilburner service.

5. A written examination shall be taken by the applicant to establish his knowledge in the above phases of oilburner work and to verify his knowledge of basic oilburner theory.

(c) Service Mechanic II

1. Shall have and shall satisactorily demonstrate all of the qualifications of service mechanic III and in addition shall have and shall demonstrate similar qualifications on vaporizing type burners and on rotary oilburners.

2. Shall have and shall satisfactorily demonstrate a basic and simple service knowledge of electronic flame control on high pressure oilburners and shall satisfactorily pass a written examination covering all of the phases of this specification for this job rating.

(d) Service Mechanic I

1. Shall have and shall satisfactorily demonstrate all of the qualifications of service mechanic II and III and in addition shall have and shall demonstrate the ability to satisfactorily handle emergency and routine service on heavy oilburners of the type installed and serviced by the Ballard Oil Company.

2. Shall have and shall satisfactorily demonstrate the ability to solve problems in advanced combustion on all firing rates and on all types of equipment presently serviced by this company, and the ability to run down and correct troubles in the electric systems and in the oil transmission and distribution systems of the equipment under consideration.

3. Shall satisfactorily pass a written examination covering all the phases of the specification for this job rating.

(e) Installer III

1. Shall be capable of and shall satisfactorily demonstrate ability to make conversion oilburner installations on both high pressure, low pressure rotary conversion type burners and to perform such operations as combustion chamber construction, tank installation, and the installation of controls all under competent supervision of a foreman assigned to the installation job.

2. Shall in addition to this qualification be capable of all qualifications of service mechanic II and shall satisfactorily pass a written examination covering the phases of this job rating specification.

(f) Installer II

1. Shall be capable of and shall satisfactorily demonstrate the ability to perform all specifications of installer III and in addition shall demonstrate the ability to perform under competent supervision, the installation of either a boiler or warm air unit with its piping or duct work and to do simple wiring operations under supervision and to fire and test the equipment under consideration.

2. Shall satisfactorily pass a written examination covering all of the phases of this job rating specification.

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be visited, so they can tell "how they do it," just so long as you make it clear to them that the door of your house is also open to them.

Hacker believes that education should not be confined to one's own staff but should be carried to the public also so they will be informed on the kind of a business you operate and how it functions for their benefit. For this reason he conducts one of the most extensive advertising and public relations programs to be found in the industry.

He has been a consistent newspaper advertiser, and in 1946 he added radio with a program featuring news, weather and sports, concluding with the slogan, "Ask your neighbor; he's already a Ballard customer." Last year as an extra feature he sponsored the broadcast of two important football games in state-wide competition and called on the radio audience to mail in their candidates for the All-Star team. After it was selected, Hacker gave the team a testimonial dinner and presented each of the players with wrist watches.

In April 1950 the *Ballard News Letter* was inaugurated for monthly mailing to all customers. It is 15" x 7½" and folds to letter size, carries household hints, recipes, poems, pictures of the company facilities and staff members. For the past year it has featured stories and pictures about Ballard

(g) Installer I

1. Shall meet all of the qualifications of installer II and in addition shall be capable of and shall demonstrate a satisfactory performance of work under competent supervision on a heavy oil installation and on advanced commercial oilburner installation in the 6 to 15 gph firing rate ranges.

2. Shall satisfactorily pass a written examination covering all of the phases of this job rating specification.

(h) Foreman III

1. Shall have and shall satisfactorily demonstrate the ability to handle a crew of installers, service mechanics and helpers on a high pressure conversion burner installation and on a rotary type conversion installation including the performance by himself of the electrical wiring and of the necessary functions to put the system into operation and to satisfactorily fire and test the installation.

2. Shall have and shall satisfactorily demonstrate a knowledge of advanced combustion on light oil and shall be capable of the identification and correction of troubles in the normal course of installation of the equipment specified above.

3. Shall have and shall satisfactorily demonstrate the ability to supervise and perform from suitable plans and specifications the installation of a complete steam or hot water system of boiler and radiation equipment also the complete installation of a forced warm air system including the unit equipment, duct work and auxiliaries normal thereto.

4. Shall satisfactorily demonstrate the will and desire to expedite the work to which he is assigned and to successfully complete the installation of the jobs assigned in a reasonable time and at a labor expense consistent with the reasonable estimates of the engineering department.

5. Shall demonstrate satisfactorily the ability to read and interpret installation drawings and specifications and to properly apply these drawings and specifications to the installation problem assigned.

6. Shall satisfactorily pass a written examination covering the qualifications of this job rating specification.

(i) Foreman II

1. Shall be capable of and shall satisfactorily demonstrate all of the qualifications of foreman III and in addition shall satisfactorily demonstrate the ability to properly and completely supervise the installation of a heavy oil rotary conversion installation including all of the auxiliaries and wiring incident thereto and in addition shall be capable of advanced performance in the manner of handling men and of expediting and advanced planning in all phases of the installation and construction work encountered by this company with the exception of the installation of steam generators and like industrial equipment.

2. Shall satisfactorily pass a written examination covering all of the phases of this job specification.

3. Shall satisfactorily pass a verbal examination given by the heating department covering all of the phases and requirements of foremanship and supervisory personnel.

4. Shall satisfactorily demonstrate in his day-to-day work to the satisfaction of the service manager that he is qualified in all manner of performance for the job rating.

(j) Foreman I

1. Shall meet all of the specifications and qualifications for a foreman II rating and in addition shall have satisfactorily performed as either foreman II or foreman III for a period of three consecutive years or shall demonstrate to the satisfaction of the heating department manager that his abilities and progress have been more rapid than normally would require this length of service.

2. Shall satisfactorily demonstrate that he is capable of handling the job of the service department manager in his absence and of satisfactorily handling all of the functions of the position in an emergency.

3. Shall display to the satisfaction of his superiors an extremely advanced ability in foremanship, supervision, advanced planning, knowledge of industrial heating and power generation, including the supervision of steam or hot water generators with all of the work incident thereto, and the ability to handle with a minimum of assistance problems encountered in all phases of the operation of the installation and service departments.

4. Shall satisfactorily pass a written and oral examination given by the manager of the heating department to prove the ability to perform the requirements of this specification.

customers. The most popular features now are stories and pictures of early Portland submitted by customers. The idea sprang from a "Good old Days" contest, marked by enthusiastic response from customers and non-customers alike.

In August 1953 the Ballard Company became the first fueloil company in Portland to advertise on television with three 20-second spots a week, using live commercials and featuring customers' families in their home and showing the type of Ballard equipment they use.

As the Ballard advertising and sales promotion program grew year after year it reached proportions where it became a man size job all in itself.

Miss Kay Connolly, a newspaper reporter with experience in radio and general publicity work, was brought into the firm and placed in charge of advertising and public relations. Along with her other duties she personally writes and prepares the News Letters, all of which seems like a man sized job for any lady.

In summarizing the Ballard company's ambitious program for the training and grading of service personnel and the extensiveness of its public relations activities one might ask, "Is it worth it?" The Answer is that Ballard has increased its sales 300% in the last five years!

Should fueloil Men also sell LP Gas?

A Number do it very successfully including "Buddy" Thornhill of Charleston

by

Robert Gray

THE COMPETITIVE STRUGGLE between fueloil and natural gas for heating, sometimes known as the "battle of the fuels" gets more interesting with each passing year. Heating gas has made greater percentage gains in the past few years than has fueloil although oil still leads in total number of installations in use and also in total new installations in the eight years since the close of World War II.

But there's a marginal phase of the business that neither side considers too competitive, since both teams have been able to get in on it and make some friends and money out of it.

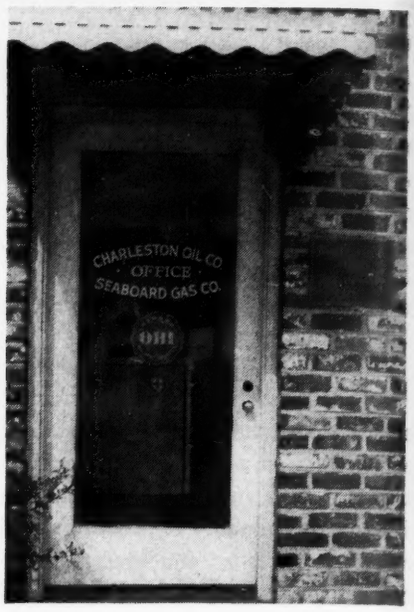
This, of course, is LP Gas.

If you read the gas industry magazines you'll see that they consider the propane (or butane) business as a portion of their natural coverage. Then there are two good magazines devoted exclusively to LP Gas business and they naturally look on this activity as something very distinct from either the conventional gas business or the petroleum business.

But our interest stems from the fact that quite a number of fueloil companies have LP Gas departments and do well with them. In earlier issues we have covered in detail the activities along this line of the Multnomah Fuel Co., Portland, Ore., Smith Oil Co., San Jose, Calif., Felker Oil Co., Marshfield, Wisc., to mention a few. In each instance their activities, their methods, were quite different from others.

This story is the result of a visit to Charleston Oil Co., Charleston, South Carolina, and its blood brother, through sharing the same real estate, management and capital, the Seaboard Gas Co.

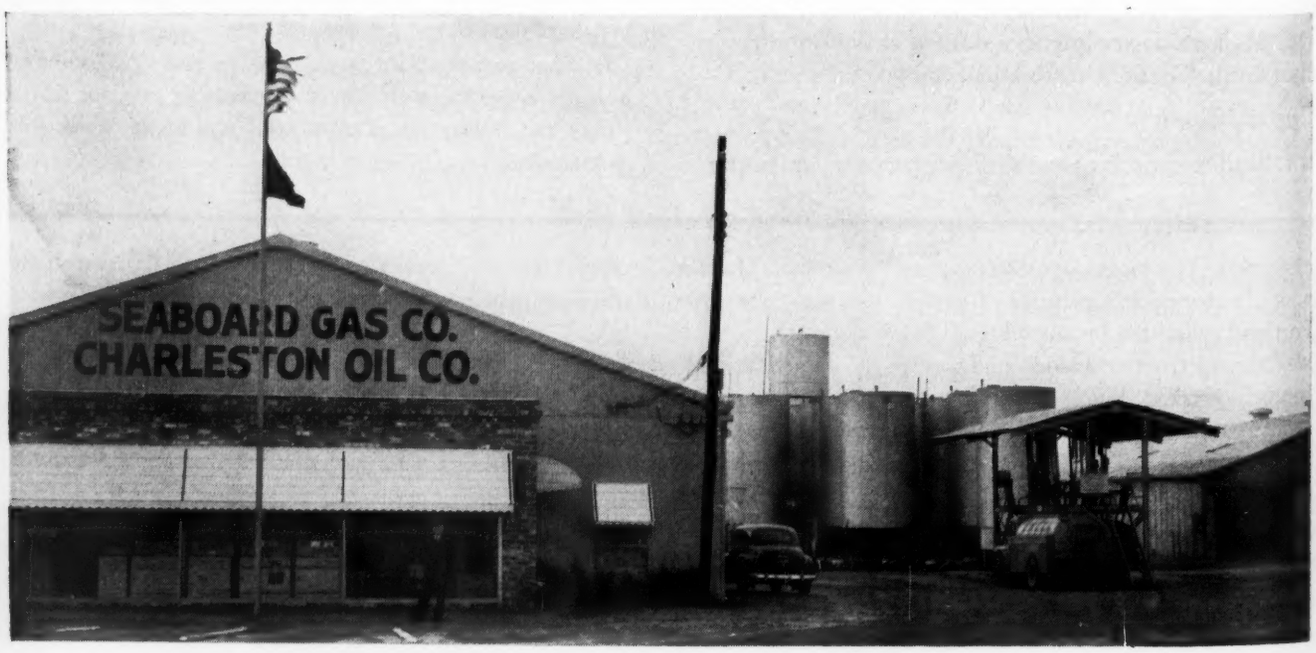
The company, that is the oil phase of it, has a long history. The present Thornhill's father had a filling station in Charleston in 1910. The pump and hose were inside the little office and when a car stopped for gas the hose was pushed out through the window.



Then after T. W. "Buddy" Thornhill got home from the first World War he and his father started a typical oil jobbing business that has grown to its present substantial proportions.

The LP Gas venture was launched in 1947 . . . it's seven years old by now. In that time it has grown to over two thousand accounts, all of them of the bulk variety. In other words, they don't operate a typical bottled gas business.

That's what makes propane distribution fit well into the fueloil business. Like fueloil, it's a trucking business. Tank trucks carry the gas to the customer where it's delivered by hose into storage tanks on the property.



In the appliance showroom *is T. W. "Buddy" Thornhill who heads up both the Charleston Oil Co. and Seaboard Gas Co. Since gas customers change around very seldom, a new account nearly always calls for appliances. Seaboard is glad to sell them or just as happy if a furniture or appliance store in the city sells them if it gets the gas business.*

Ranges are the principal item, with water heaters next. Most popular is a glass-lined 30 gallon heater at $139. Direct mail plus one full-time salesman is the extent of pushing appliance sales principally because "you can't afford to grow too fast in this business."

It's an automatic delivery business where the customer never has to watch his tank and call in, unless he particularly wants it that way.

Gas customers are divided into two broad general classes, those who own their tanks and buy in bulk lots, and the larger group that has the gas on a meter and pays a monthly bill the same as from any public utility.

With the metered customers, Seaboard owns both the tanks and the gas in them. A meter reader goes around each month and the gas used is charged on a step-down rate basis.

Where it's only used for cooking the average bill run $4 a month; water heating averages around $3 a month.

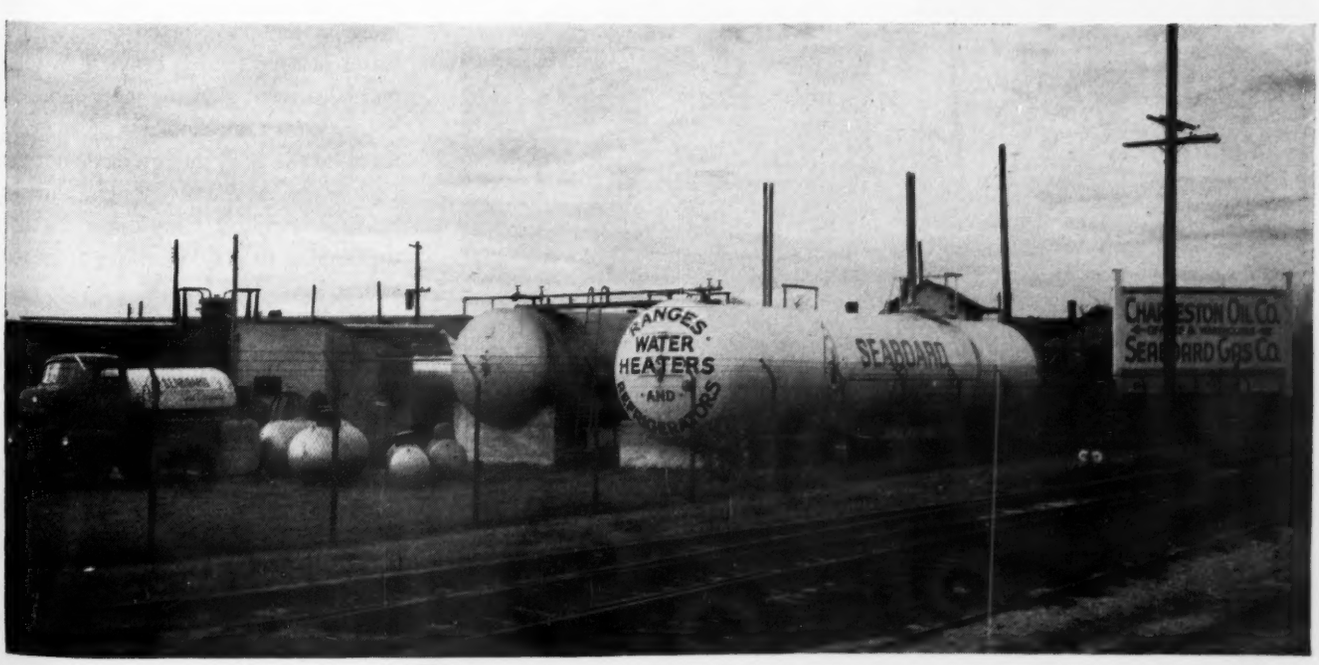
The climate around Charleston is moderate . . . 1,840 degree-days. This means that a lot of rural families can afford to use LPG for heating too . . . about 15% do.

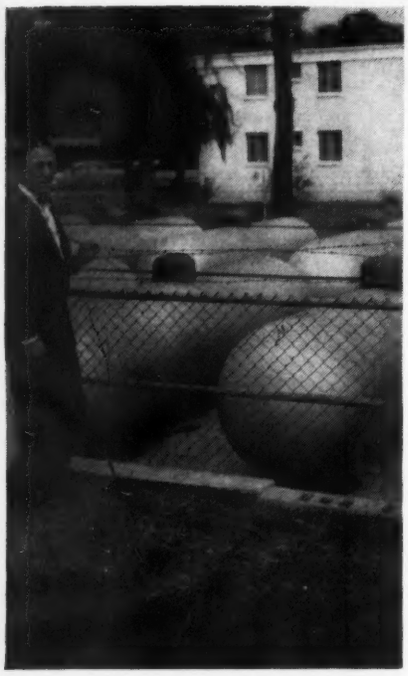
Usually it's a space heater or floor furnace. A typical family using this gas for heating in addition to the more common domestic uses will buy 800 gallons of LPG a year. If this is on the metered basis the cost will average probably 25¢ a gallon.

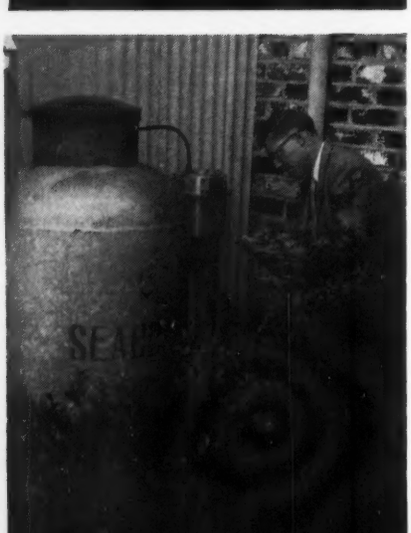
Under the rate brackets the largest user of metered gas gets down to around 17¢ a gallon. This would be for the big country restaurant or a large home with central heating. There are not many of the latter, only about two dozen in fact, because when you go that heavily into gas consumption oil is too much cheaper. A central heating plant in a large home in the country will use upward of 1,500 gallons. With 91,500 Btu to the gallon, it comes high.

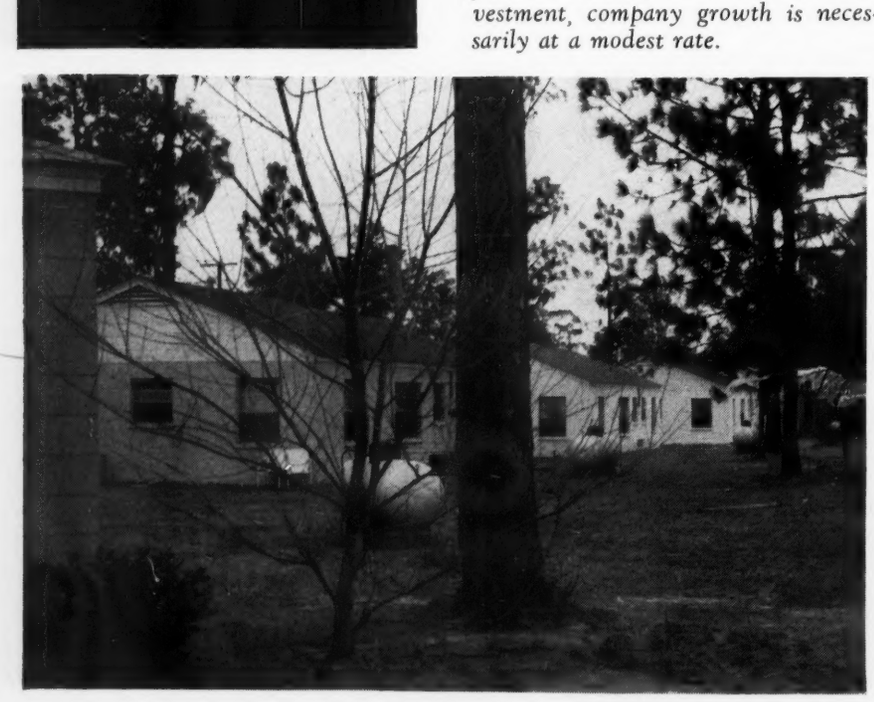
Where a customer owns his tank and buys the gas outright his average cost is around 22¢ a gallon.

All bills are subject to a discount of 10% if paid in 10 days, but amazingly only about 60% of customers take the discount. The others are rela-









Garden development *with 96 apartment units in suburban Charleston, where a group of twelve 1,000 gallon gas tanks provide cooking, water heating, refrigeration and space heating for all. Each apartment is metered from lines run underground. "On the fence" is C. J. Smith who is vice-president, treasurer and general manager of Seaboard Gas. He came from the city gas utility. Seaboard has a number of multiple installations. The most common variety is shown in the bottom picture where a group of small homes has one 500 gallon tank for each two families, but individually metered.*

The middle picture shows Tommy Thornhill, son of the president and working exclusively in the gas end of the business, reading a meter on the type of tank most commonly used for individual homes where the principal application would be cooking and water heating.

This is a 125 gallon size and it's installed at the office building to show to prospective customers. These tanks carry 250 lbs. pressure.

The new gas customer pays $20 for installation of tank and piping, but the company has a capital tie-up of $110 in each of these tank installations. Because it takes a long time for profits from a customer to amortize this investment, company growth is necessarily at a modest rate.

tively safe credits, however, because when the gas is first put in the customer posts a deposit representing an estimated two months' billing.

Where customers are on meters and the company owns the storage each tank has a liquid level gauge. The meter reader always checks this level and when the tank has less than a month's supply he reports it. Most of these metered accounts have 125 gallon tanks which are never filled more than 80% to allow for expansion at higher temperatures. Thus a 100% drop would be 100 gallons. The average to these tanks is actually 65 gallons because the dispatcher uses a route system after he catches the key accounts in any area.

On the privately-owned tanks the average drop is 125 gallons. The minimum delivery to these private tank accounts is 50 gallons.

The goal in the LP Gas business is to have each customer provided with four months' storage. In actual practice the goal isn't reached but they work toward it. Getting the maximum storage at all points is mighty important because of the way you buy LPG from the refineries. They insist on a ratio of one gallon in summer to each gallon and a half in winter. And since the winter consumption is much higher than the summer it has to be stored somewhere.

Seaboard is able to push about a hundred thousand gallons into customer storage tanks by October 1. Then it has 48,000 gallons of its own capacity which can be 80% filled, plus a couple of loaded tank cars on the siding . . . and thus fortified they launch the winter season.

Curiously, the winter load is not due entirely to space heating. Folks cook more in winter and they heat more water. In Northern states the water heating load is heaviest in summer because of so many more showers. Southerners take showers too, scads of them on the high muggy days, but the tap water is warm enough without heating. Around Charleston it's not uncommon to get 85° water from the faucet.

The high pressure tank trucks that deliver this gas have 1,240 galllons capacity and Seaboard operates three of them. They deliver about 1,500 gallons a day at around 20 gallons to the mile of truck operation.

Other operating details include cost of gas in tank cars delivered to Charleston, around 9½¢, approximately the same as published for other South Atlantic ports; in cold weather

methyl alcohol is introduced into gas in the bulk plant to prevent formation of "snow" on regulating valves caused by water in the gas; a meter reader covers 150 accounts in an eight hour day; the company fills cylinders for two independent dealers at its bulk plant, also has a gas service pump where folks can bring their "bottles" from trailers or boats for a filling.

There are five LPG competitors in the Charleston area. They do very little raiding of each other's customers, not by agreement but because it's easier to start a new user than entice an old one. Again, there's little tendency to take other men's business when you can't afford to grow too fast anyway.

For while LP Gas is not necessarily a rich man's game you can't get anywhere on a shoestring. In our Multnomah Fuel story some years ago, Jim Yeomans estimated that you can't make a success of this business with less than $50,000 separate working capital. Thornhill first set aside $30,000, then later another $50,000. Today the investment is $130,000 in the Seaboard end of it.

It obviously pays well or the added investments would not have been made.

The original concept is naturally to grow out of profits, but that proves too slow if you're going to own the tanks and the customer storage. So you invest more, with profits about as secure as they would be with a conventional public utility.

Fueloil and LPG go together nicely, they tell us, because you serve so many more families and they come to trust your business methods. Then you can often sell oilheating to better homes that use your gas for cooking, and also the other way around. If it's a farm gas account you can sell them gasoline and lubricants, plus gas and oil. In other words, you become a fuel department store.

To close the story with a humorous incident . . . natural gas came to Charleston in January with house heating rates of about 12¢ a therm, and the papers were full of it. Capitalizing on the popularity of the word "gas" the LPG companies ran cooperative advertising to congratulate city folks on being able at last to have what country folks had enjoyed for years.

Neighborhood bulk plants, *of which Charleston Oil has four in addition to its main plant on the Ashley River and shown on a previous page. These local plants have a very interesting operation. The property and trucks are owned by the company. They are operated by a man designated as a "dealer" and the trucks carry his name as well as the company's. In his territory he does all the selling and delivering. Over a period he can build quite a business.*

The plant in the upper photo is across the Ashley River south and it does near two million gallons.

The lower picture shows the newest dealer plant with tanks unpainted. It's north across the Cooper River. With 40,000 gallon capacity in four tanks, loading rack, real estate, small office and fencing it cost $6,500 or 16¢ a gallon. By contrast an LPG bulk plant, equipped, costs around 75¢ a gallon. The young man shown is Van Noy Thornhill, "Buddy's" other son who is concentrating on the oil end of the business. Incidentally, he is going to take the company into the oilburner business this spring.

The other two outlying bulk plants are west of town and over at Summerville. Not all four operate on the same dollar or margin basis but in general the company carries the credit accounts, the "dealer" provides his office girl and other drivers and is paid 2¢ a gallon on kerosene, 1¾¢ on distillate fuel and 1½¢ on gasoline. This is about the same deal as with the Midwestern "commission" man.

Other highlights of the Company's oil operation, which are only window dressing in this gas story, are two million gallons of gasoline annually, all to consumers, none to service stations; Quaker State motor oil agency for nine counties and nearly all of it sold to garages and auto dealers, very little to service stations; substantial industrial volume in naphtha, benzine and assorted petroleum specialties . . . also the largest fueloil distribution in the city.

Profits in Cooling

Part III. Compressors and Condensers in residential Airconditioning

by
J. R. Lewis

WHEN CONSOLE model and then window type airconditioning units were first introduced, a few manufacturers spent a number of years creating a demand for the product. Then a substantially larger number of different makes were successfully introduced. This in turn helped to create a far bigger demand for room airconditioners.

Today an important number of manufacturers are spending a greater share of their time on a larger central system that will be used with forced air for a combination of heating and humidifying or cooling and de-humidifying. Quite naturally the real estate developer, the installer and the buyer will all want what must be good enough, and for the least money. To combine these advantages is a challenge that can only be met by clever design and proper application for the different local climate and building conditions. The public continues to show greater interest in this central heating and cooling equipment and it would appear to be a very safe prediction that the number of units to be installed during the next few years will continue to be double the number installed during the previous year. Many who have made careful market surveys think that this is too conservative.

Logically, because of this great potential, there will no doubt continue to be a number of new makes of cooling units offered with furnaces or to be added to existing warm air heating plants. The presently popular "package system" of airconditioning produced by a number of experienced manufacturers is of high quality, designed for long, dependable and highly satisfactory performance. The early difficulties experienced with room type units have helped greatly to improve the design and construction of the larger and more complicated units that must provide the same or greater comfort for larger quarters and at more reasonable cost. Anyone who has studied the subject knows that window unit sales were handicapped for some time because not enough dealers were informed and could not therefore make reliable recommendations. With any type of product manufactured to perform a service, maximum effectiveness will only be provided when the installation is in the hands of men who understand the functions of the parts of the system. Central station airconditioning is anything but an exception to this rule, and our previous installment therefore explained some of the theory of refrigeration. The basic principle is to use a compressor to pump a gas which has absorbed heat from a cooling coil, and to push the gas through a condensing coil where the heat can be dissipated at a higher temperature, and away from what is to be cooled.

At this point it will be well to review the different types of compressors which can be used with the 2 or 3 or larger horsepower systems that are generally suited to small, medium and fairly large residential work. As previously mentioned, the refrigerant gas is normally Freon-12. For greatest pumping efficiency with least noise or vibration the V, the W, and radial arrangement of cylinders around crank shaft are all common. Compressor which is known as the open type has its shaft through its crankcase. It may then be driven through belts or a coupling directly on a motor shaft. Belts are ideal for compressor speeds less than standard motor speed of 1750 rpm, and they provide flexibility as it is easy to change a pulley to get different compressor capacity. Today most of the compressors in this range of sizes are built to be used at 1750 rpm. Those with relatively large bore and small stroke have normal piston speeds because they travel the same distance in a given period of time. Piston speed is a measure of the expected life of the compressor before major repairs will be necessary.

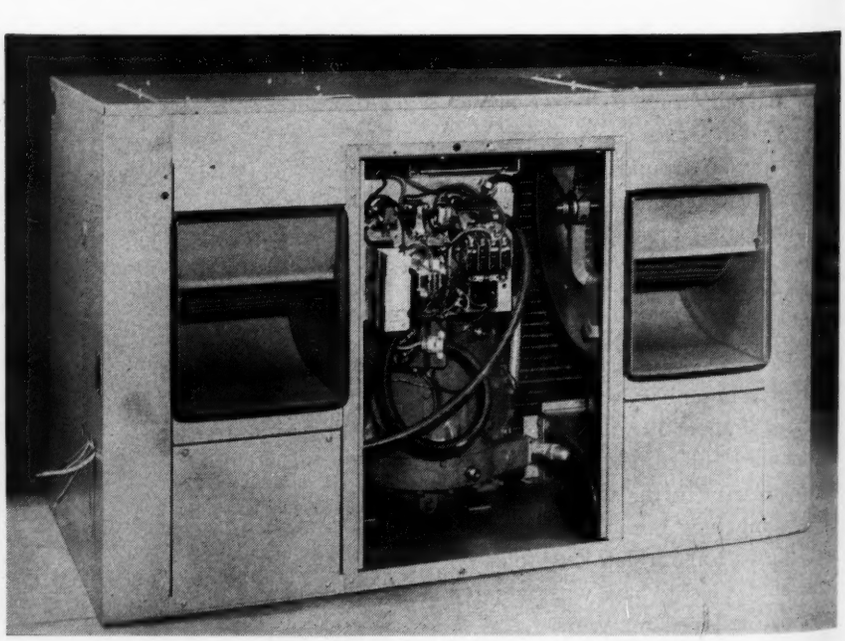


Photo 1: *The housing shown is built for all weather outdoor protection of the enclosed high side equipment. The 5 hp compressor has radial cylinder arrangement. The air cooled condenser, rated at 4.2 tons with surrounding temperature of 95°, is fed by two ½ hp blowers. Suggested locations include basement, utility room, breezeway, or back yard. Unit weighs about 900 pounds. Photo courtesy of Chrysler Airtemp.*

At the point where the shaft passes through the compressor crankcase it is necessary to have a gas tight seal, or else the refrigerant gas will escape from the system. The seal is a common source of trouble particularly when the compressor is idle for extended periods of time and there then is no lubrication. However, it is important to note that the open type compressor is the easiest of any to service at the point of installation. Work that must be done in a manufacturer's service shop can be both costly and time-consuming.

The shaft seal service problem was entirely eliminated with the introduction of the hermetically sealed models. This construction has been used for a long time on the very small size machines that take care of a household refrigerator or soda dispenser. It provides a single sealed metal enclosure for all of the compressor parts and the motor as well. The idea is of course excellent. In practice there have been some problems, largely because even a slight trace of moisture will upset any rerigeration cycle. For example, the small amount of air that is contained in a compressor crankcase will hold some very small quantity of water vapor as normal humidity. This air and its entrained vapor must be entirely evacuated before the compressor can be charged with Freon refrigerant. Otherwise the air will be responsible for very high head pressure on the system, and the moisture will be responsible for very serious trouble. There can be both corrosion and frosting, the latter preventing the expansion valve from passing any refrigerant.

Factories producing any type of refrigeration systems have a lot of equipment to remove all air and vapor from inside of their units. The final assembly must pass rigid inspection on this point. Then all is well so long as no part of the entire circuit needs to be opened. Those who do an appreciable amount of refrigeration service work will soon learn of the need for the special type of pump used to get the high degree of vacuum that must be maintained to prepare a system for use. However the hermetic type unit in general use is not easily field serviced, and the makers have good reason for their recommendations about return and replacements.

The trend in compressor design for this class of work definitely is toward hermetic type construction for even the largest size. Those of the 100% sealed type must be replaced rather than repaired on the job. Those which are semi-hermetic are built so that certain wearing parts may be field serviced. This can save time and expense only if complete replacements are in a nearby stocking depot. Without question, the most experienced airconditioning contractor has learned to respect the manufacturers' recommendations regarding servicing. This avoids needless costly future trouble, and in the long run proves to be the quickest safe solution, as well.

Accompanying photo 1 shows how a semi-hermetic radial type compressor is direct-connected to a motor (5 hp) with vertical shaft. The assembly shown also has two blowers (2000 cfm each) for circulating air to dissipate condensor heat. The finned coil on the rear of the casing is the condenser.

Photograph 2 is a view of a high side compartment which uses three ton capacity W type piston arrangement and semi-hermetic design for the direct driven compressor. A shell which contains a coil through which water is circulated to serve as the condenser can be seen in the rear.

The last photograph is the compartment that houses high side cooling equipment which is a part of one complete assembly used to control temperature and humidity.

The features which make a compressor most desirable are hard to list in the order of their preference. This will vary and depend upon the needs of a particular job. However the following are among the important points which should not be overlooked:

1) The amount of refrigeration effect (at the operating conditions of head pressure and suction temperature) per unit of power.

2) Dependability and anticipated service problems, along with availability of parts, instructions and assistance.

3) Vibration and noise characteristics.

4) Price.

Although the compressor is known as the heart of the system, residential work by the installing dealer calls for a much more careful study of the all-important condenser question. In every cooling cycle, refrigerant being pumped from the evaporator is delivered to the condenser. The purpose of the condenser is to get rid of heat that was added to the refrigerant in the

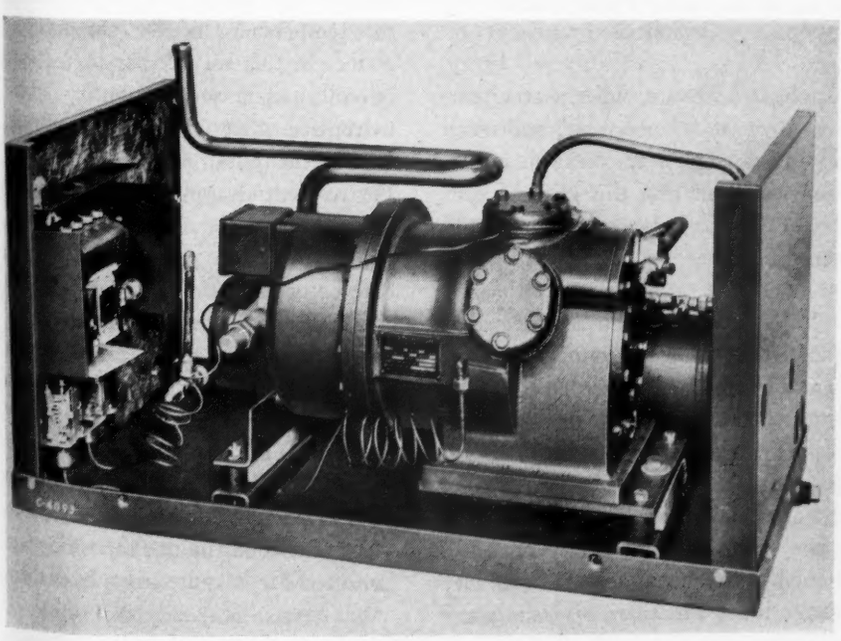


Photo 2: *A view of a high side compartment which uses a three ton W type semi-hemetic direct driven compressor, and shell and coil type water cooled condenser, seen in the background. Capacity of the combination is approximately 3 tons. Photo courtesy Worthington Corp.*

evaporator while it was cooling the surroundings, and also heat that was added because the gas had to be compressed. Therefore, the amount of heat to be unloaded by the condenser for a typical residential job will be about 25% greater than the cooling capacity. This figure will increase if the condensing temperature is allowed to rise above a figure which is normal for the given conditions. Generally speaking, the compressor power consumption will be reasonable if the condensing temperature is maintained within a few degrees of 100°. Power consumption will increase and cooling capacity will decrease as the temperature rises. Therefore, the size of compressor, motor, and condenser must be selected for the right combination.

Factors to be considered

Furthermore, the cost of operation is what will be paid for power and water, if any. The installing engineer should therefore analyze the facts and decide whether the cooling of the condenser is to be done by: (A) Water which is all wasted, but usually keeps the condensing temperature at the lowest point for maximum efficiency, or (B) Water which is recirculated to a cooling tower, swimming pool, or possibly a fountain; or (C) Condenser with surface cooling by air alone; or (D) Condenser with surface cooling by a combination of air circulation and evaporation of water sprayed over its surface. The latter is known as the evaporative type condenser.

Water-cooled condensers which are popular today are usually of the shell and tube or shell and coil construction. Refrigerant passes through the shell and is cooled by water passing through pipes arranged in several circuits or a single coil. The latter construction is least costly, but it is easier to repair leaks when tube passes are separate. The water-cooled condenser is the most compact and doesn't need air circulation to prevent overheating. Therefore it is almost always inside of the housing which encloses the balance of the equipment. To avoid waste, these condensers must always be provided with a water-flow regulating valve. This valve will open to permit water passage as the compressor starts and builds up condenser temperature. It will tend to close as the temperature and pressure drop below a point for which the valve has been adjusted, and it will shut when the pressure or temperature reach a lower setting, as they do when compressor stops. An important function of this valve is also to allow a small amount of cool water or a greater quantity of warm water to be circulated and thereby keep uniform equipment performance with efficient water consumption. When water supply is adequate, when water temperatures are not abnormal, and when water drainage is no problem it is a fairly safe bet that this type of condenser will have lowest first cost and perhaps lowest operating expense as well.

Photo 3: *Close-up of compact arrangement of high side equipment. The back end of vertical semi-hermetic compressor is seen at the left. The expansion valve is seen at the top center, but the evaporator is not shown. This set is rated at two tons. Photo courtesy of Carrier Corp.*

It is a well-established fact that many sections of the country have recently experienced water supply problems which are acute during the hottest season at the time when consumption for air cooling is needed in largest quantities. Some city governments require special permits before airconditioners may be supplied from city water lines, and there also are many restrictions as to what must be done with the waste water. Water supply and disposal is becoming a more serious problem as more summer cooling is installed everywhere. An important contributing fact is the large amount of water required. This can be calculated after several factors are taken into consideration, and manufacturers have established rating tables on a gpm per ton basis for any water temperature between figures like 60° and 85°. For water temperatures near 75° this can be as much as 2 gpm for each ton of cooling effect. Thus, a 2 ton unit operating for 15 hours may need 1800 gallons or 240 cubic feet. While availability of the required quantity as well as disposal may never be overlooked, the cost for this service should also be considered before final selection of the cooling equipment has been settled.

Large Systems made Efficient

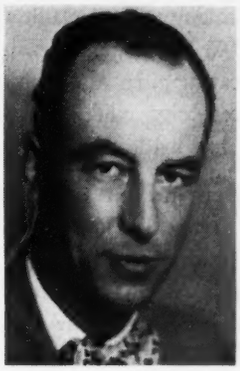
A great many of the large industrial refrigeration systems have been made more efficient by using a cooling tower to save perhaps 90% of the water that would otherwise be consumed through water condensers. The idea is to use a pump to deliver water through the condenser and then to an out-door spray pond or tower. By exposing the warm water in the form of spray to large amounts of air, some of the water will evaporate. As it does, and the change is from liquid to gas, the latent heat added is about 1000 Btu per pound. This is furnished by reducing the temperature of the surrounding water. In this way cooler water may be collected, a small quantity added to replace what was evaporated, and fed to the pump for another cycle. For residential applications the space, appearance, noise and freezing problems must be looked at with great care before selection is approved.

The air cooled condenser is basically the most simple, and accordingly the best that can be recommended, except for the fact that it must be located in a spot where it can easily dispose of large quantities of hot air. Not very long ago an air-cooled condenser that would deliver a full one ton rating was considered to be quite large. Now there

(*Please turn to page 154*)

Bell

Foland



Burroughs

Matheson

Vesper

Consumer Relations featured at record Pacific Convention

LARGELY BECAUSE of anticipated natural gas competition in the Pacific Northwest the underlying theme of the various speeches at the March 19-20 convention was improved customer relations for oilheating. The proper title of the meeting was Eleventh Annual Convention, Pacific Coast Distribution Division, Oil-Heat Institute of America, and it was held at the Multnomah Hotel, Portland, Oregon.

This convention rotates annually between Portland, Seattle and Spokane, so this time the convention host was Oregon Heating Industries, Inc. and its President, Charles R. Holloway, Jr., was Chairman of the convention. Holloway is general manager of Liberty Fuel and Ice Company, Portland. Assisting Holloway in convention arrangements and conduct of the meetings were James C. Yeomans of Portland, Mayor Al Loucks of Salem, and Henry Ault of Eugene.

Dale Josephson, Executive Secretary of Oregon Heating Industries, and his staff were in charge of arrangements. Mrs. Charles Holloway, Jr., was in charge of ladies' activities, assisted by Mrs. Jim Yeomans and Mrs. Cliff Arnston.

The convention set a record for attendance with 450 men and 160 ladies registered.

The lead-off speaker was Howard G. Vesper, vice-president, Standard Oil Co. of California, and former manager of its fueloil department, who discussed "Is Oil Heat on the Way Out?"

Explaining that heating oil is one of the main foundations of the petroleum industry he mentioned that his company has always underestimated its growth, and backed this up with the progress note that since 1942 heating oil consumption on the Coast has risen from 30,000 barrels daily to 140,000.

California Standard has over 250 fueloil distributors, and Vesper stated his company's position that only this type of independent marketer can provide the oilheating service that the customer expects, moreover the majors prefer these local distributors because the big company does not want to get into the furnace business, which he considers an adjunct to fueloil.

Heating oil quality is at a peak, he feels and will continue to improve under pressure of competition, with research on additives offering the biggest field for improvement of these fuels.

Because Vesper is a member of the Atomic Energy Commission, he spoke briefly about the future impact of this energy on the nation's fuel markets. It is now possible to build a plant to make atomic electric power, but it will be a long while before it becomes competitive in cost.

Holding up a one inch cube of uranium 235 weighing a pound he made the dramatic statement that this was equivalent in energy to 250,000 gallons of heating oil if fully utilized. "It's coming," he said, "but down a long road, not significant for the next 10 or 15 years."

Natural gas, in his opinion, is a good fuel but not invincible. He believes that its cost when it comes to Washington and Oregon will be about the same as fueloil. Vesper estimates that by 1958 gas usage will be equivalent to 32,000 barrels daily of oil, with 6,000 barrels daily replacing heating oil. At the same time he expects that heating oil consumption will increase more than 10% by then.

Vesper has been studying the effect of the coming of natural gas to other parts of the country, and this is his conclusion: "If you put your house in order and if you promote hard you will continue to grow; if you ignore it you will be hurt bad. Portland can have the experience of Baltimore where oilheating promotion has kept the market growing or Washington, D. C. where gas has won largely by default."

He believes that the fueloil marketer must offer complete oilheating service, selling new equipment to replace the jalopies; they must go in for service contracts and annual overhauls or checkups for all customers.

In conclusion Vesper pointed out: "Competition is strong and well organized but you can be also."

The second principal speaker of the convention was James F. Bell, vice-president Portland Gas and Coke Company, whose subject was "Markets for Natural Gas in the Pacific Northwest." This was a decidedly friendly gesture on the part of Bell to come in and tell his competitors what his people are thinking. Bell has a good many friends in the oil industry principally because his company is one of the few remaining manufactured gas producers using oil as the principal base for the gas. In fact Bell is presently a customer of the oil industry, buying annually over 115,000,000 gallons of fueloil.

He also mentioned that he had in his own home one of the oldest and most inefficient oilburners in the city.

After discussing at some length the history of the gas industry going back to 1802, and in fact back to Julius Caesar, he pointed out that today's annual consumption has reached 6,000,000,000,000 cubic feet or three times what it was in 1930. He then mentioned that the gas industry serves 27,000,000 customers through a pipeline network of 400,000 miles. He mentioned that during the 1952-53 heating season the industry added 1,900,000 new house-heating gas customers to its line bringing the total number of house-heating customers up to 11,750,000.

This, of course, is at wide variance with the figures published by Gas Appliance Manufacturers Association unless you include wall furnaces and space heaters, which is undoubtedly what Mr. Bell had in mind. The actual number of new central heating gas customers last year was 797,000 and the total of such installations in use at the start of this year was just a whisker above 6,000,000.

Anticipating natural gas lines coming to the Pacific Northwest, Bell stated that by the third year of natural gas operation his company will take about 38% of all utility sales made by a pipeline serving the Northwest.

During the past 20 years the Portland Gas Utility with increasing competition from cheap electric rates has turned more and more attention to house heating with a result that presently 45% of its total gas sales are for house heating purposes. This is the only Northwest city where gas for space heating has made any progress.

The principal jolt that Bell gave to the fueloil men was in the statement that when a gas pipeline costing $150,000,000 is completed to the area gas rates must be low enough to rapidly build a load up to the line's capacity. Specifically he states: "Such load building requires rates providing a competitive advantage over other types of fuel within the territory. These lower rates to both the distributors and ultimate consumers must be available and be maintained throughout the development period even though temporarily yielding less than a fair rate of return to either the pipeline company or the distributors."

Bell told the marketers that generally speaking they had had an easy time in the Pacific Northwest, but that with the advent of natural gas they will have a vigorous and resourceful competitor with a practically unlimited supply. He mentioned that in the first five years of natural gas they expect to add "a substantial number" of house-heating customers with 28% of these coming from new construction, 18% from coal and wood users, 18% from present users of furnace oil and 36% from present users of stove oil.

In conclusion he emphasized that the Pacific Northwest is a vital and rapidly growing part of the nation and that its prosperity will continue to provide adequate incentive and growth for all fuels.

Fred S. Burroughs, National Secretary of the Distribution Division, OHI, spoke on "What's in the Cards for Oilheat." Much of his talk had to do with gas competition and he presented some quite original thinking on this topic. By way of background he mentioned that the gas industry in 1954 is building an additional 2,000 miles of pipelines and spending for expansion $1½ billion. He described the typical program of a natural gas utility as constituting three phases. First, they go after the new home market on the basis of saving about $175 cost to the operative builder. Second, they go after conversions from other fuels with a propaganda campaign that emphasizes their fuel being cleaner, more automatic and cheaper, regardless of the truth of the implication.

He feels that they follow the Hitler policy of making the lie big enough and loud enough and told often enough until people believe it. As a third step the utility goes after the industrial market with interruptible service which in turn permits it to take considerably more residential heating load in winter.

Burroughs then outlined a proposed plan which he stated was a personal view and not sponsored by the Institute. This also is a three step program. First he urged complete organization to get all interested oilheating companies into OHI chapters for national strength. He mentioned that the dealer membership in the Institute had more than doubled in the past two years and its goal is one new chapter per month.

Negotiations are now underway to affiliate with another group that would double the membership this year.

As the second step in this plan Burroughs urged upgrading of installation and service practices. Having just completed a tour of the local OHI chapters in Midwestern states he had a

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Seated left *to right: Charles R. Holloway, Jr., President, Oregon Heating Industries; Bob Elmslie, Managing Director, Oil Heat Institute of Washington state; Elgin Pritchard, Ass't to Elmslie; Dale Josephson, Manager, Oregon Heating Industries. Standing: James C. Yeomans, Director, Oregon Heating Industries.*

1953 Installations were 823,365

FOLLOWING what seems to be a habit of years' standing our final estimate for oilheating installations of 823,365 in 1953 is up 3.6% from the estimate which we had published in our January Yearbook issue, or 794,723. This is only modestly above the final figures for the gas industry of 798,860 as developed by GAMA and the magazine "Gas Heat."

Oil and gas heating have been pretty much nip and tuck for several years with oil holding about a 10% lead in total installations since World War II.

This is how we figured the final 1953 estimate:

Factory shipments		831,830
Less exports of		33,755
Net domestic shipments		798,075
Dealer stocks		
Jan. 1, 1953	94,497	
Jan. 1, 1954	69,207	
Stocks declined		25,290
Indicated installations		823,365

The Midwest market again showed the best gains percentage wise with an increase of 12.5% in the number of heating oil users, however, the Midwest superiority was much less pronounced than the previous year when it had gained 16.1%. In addition to the Midwest, Mid-Atlantic, and South Atlantic the Pacific sections also made a better showing in 1953 than the year before:

Sectional Percentages

	1953 Installations	*Total In Use 1/1/54*	*Gain Over 1/1/53*
New England	15.1%	17.1%	9.0%
Mid-Atlantic	39.7	41.1	10.5
South Atlantic	5.7	4.8	11.7
Midwest	30.4	26.7	12.5
South Central	1.4	1.3	10.3
Mountain	1.1	1.2	8.5
Pacific	6.6	7.8	7.9
All Sections	100.0	100.0	10.6

The large table shows an interesting breakdown of installations by types and also takes into account our losses to other fuels.

New home installations represented 39.3% of all actual oilburner sales during the year, while conversions from other fuels still lead the parade with 48%. This latter category is declining a little each year, not necessarily in actual numbers but in percent of total industry business.

Replacements of old oilburners at 104,567 was very close to the previous year when we had 103,283. This is disappointing because total replacements should be gaining rather sharply each year now that we have 7,000,000 burners in use and a lot of them of the prewar variety.

The unfortunate phase of this is that gas is getting about one-third of the

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Distillate Oilburner Installations by States, 1953

	Burners In Use 1/1/53	INSTALLATIONS				*Lost to Other Fuels*	*Burners In Use 1/1/54*
		New Homes	*Replacements*	*Conversions*	*Total*		
Maine	76,110	3,292	1,360	3,905	8,557	362	82,945
New Hampshire	74,097	4,785	1,324	5,129	11,238	352	83,659
Vermont	21,796	698	389	912	1,999	104	23,302
Massachusetts	581,146	25,619	10,385	30,229	66,233	2,760	634,234
Rhode Island	79,891	3,342	1,428	4,004	8,774	379	86,858
Connecticut	265,505	10,174	4,745	12,528	27,447	1,271	286,936
NEW ENGLAND	1,098,545	47,910	19,631	56,707	124,248	5,228	1,197,934
New York	1,131,380	24,070	17,729	91,659	133,458	5,250	1,241,859
New Jersey	579,763	15,231	9,085	53,320	77,636	2,690	645,624
Pennsylvania	540,512	16,375	8,470	54,481	79,326	2,508	608,860
Delaware	41,865	1,817	656	5,422	7,895	194	48,910
Maryland	246,852	3,845	3,868	16,915	24,628	1,145	266,467
Dist. of Columbia	71,373	52	1,130	2,593	3,775	345	73,673
MID-ATLANTIC	2,611,745	61,390	40,938	224,390	326,718	12,132	2,885,393
Virginia	140,911	8,742	4,474	2,101	15,317	958	150,796
West Virginia	2,663	171	85	41	297	18	2,857
North Carolina	74,676	14,766	2,371	2,725	19,862	508	91,659
South Carolina	21,996	1,665	698	376	2,739	150	23,887
Georgia	14,556	1,419	462	299	2,180	99	16,175
Florida	45,926	4,134	1,459	890	6,483	314	50,636
SOUTH ATLANTIC	300,728	30,897	9,549	6,432	46,878	2,047	336,010
Michigan	304,355	35,350	3,862	21,133	60,345	3,856	356,982
Ohio	138,519	12,851	1,758	7,873	22,482	1,755	157,488
Indiana	119,715	8,252	1,519	5,266	15,037	1,517	131,716
Illlinois	329,945	28,114	4,187	17,408	49,709	4,180	371,287
Wisconsin	220,002	14,109	2,792	9,108	26,009	2,787	240,432
Minnesota	226,121	14,822	2,869	9,535	27,226	2,865	247,613
Iowa	110,416	11,152	1,401	6,765	19,318	1,399	126,934
Missouri	92,819	7,266	1,178	4,551	12,995	1,177	103,459
Kansas	11,136	797	141	506	1,444	141	12,298
Nebraska	51,379	4,496	652	2,775	7,923	651	57,999
South Dakota	28,670	1,624	364	1,071	3,059	363	31,002
North Dakota	29,753	2,543	380	1,576	4,499	391	33,481
MIDWEST	1,662,830	141,376	21,103	87,567	250,046	21,082	1,870,691
Kentucky	10,990	1,464	305	281	2,050	65	12,670
Tennessee	15,552	793	432	195	1,420	93	16,447
Alabama	9,114	694	253	151	1,098	54	9,905
Mississippi	1,705	211	47	41	299	10	1,947
Arkansas	2,737	217	76	47	340	16	2,985
Louisiana	10,346	1,198	287	236	1,721	62	11,718
Oklahoma	2,217	342	62	64	468	13	2,610
Texas	31,034	2,605	863	551	4,019	185	34,005
SOUTH CENTRAL	83,695	7,524	2,325	1,566	11,415	498	92,287
Montana	8,073	421	126	122	669	85	8,531
Idaho	15,769	1,330	246	351	1,927	166	17,284
Wyoming	3,876	467	60	117	644	41	4,419
Colorado	11,597	956	181	254	1,391	122	12,685
Utah	11,369	1,001	177	263	1,441	119	12,514
Nevada	11,057	1,018	172	266	1,456	116	12,225
New Mexico	2,815	150	44	43	237	30	2,978
Arizona	14,294	563	224	176	963	149	14,884
MOUNTAIN STATES	78,850	5,906	1,230	1,592	8,728	828	85,520
Washington	195,884	12,001	3,763	6,971	22,745	2,018	212,848
Oregon	124,265	3,758	2,387	2,716	8,861	1,280	129,459
California	189,334	12,810	3,641	7,275	23,726	1,952	207,467
PACIFIC STATES	509,483	28,579	9,791	16,962	55,332	5,250	549,774
UNITED STATES	6,345,876	323,582	104,567	395,216	823,365	47,065	7,017,609

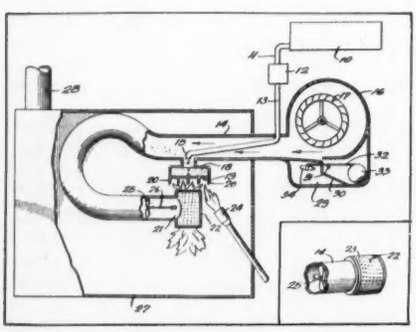
Oilheating Patents

by
Melvin Nord*

Apparatus for Vaporization

U. S. 2,661,054, issued Dec. 1, 1953 to Edwin C. Hyatt, Luther L. Lyon, Jr., and Willis R. Swanson, and assigned to The Coleman Co., Inc., describes apparatus for the vaporization and combustion of cracked fuels.

Distillate fuel oils are classified as straight-run fuels (produced by distillation alone) or as cracked fuels (fuels produced by thermal, catalytic or reforming processes). The widespread use of cracking processes for the production of high octane gasolines has resulted in greater supplies of the by-product cracked fuels. These fuels form much greater quantities of undesirable residues during vaporization and combustion than do straight-run



Figures 1 and 2

fuels. Blending with straight-run fuels only partly alleviates the problem.

The conventional method of introducing fuel oil to most burners is by conveying the oil through a pipe or channel where the oil is in wetting contact with the pipe. In pot-type burners, the oil is allowed to flow from the pipe onto the bottom, with the oil wetting the bottom of the burner. If the temperature of the pipe or bottom is such that some vaporization of the oil is accomplished then tarry residues may deposit on the bottom and on the pipe, and eventually impede the flow of oil through the pipe. The collection of tarry residues in the burner limits the efficient life of the burner. Furthermore, in existing types of oil burners, the mixing of fueloil vapor with air is usually accomplished in a space where combustion of the vapor is taking place. This condition tends to prevent the adequate mixing of the vapor and air before combustion is initiated, and usually results in the formation of soot and smoky or yellow colored flames. Cracked fuel oils are difficult to handle in such equipment.

The current trend of opinion among experts and textbook writers is that temperatures in the vaporization zone must be kept low in order to prevent cracking and accumulation of carbon deposits. However, according to the inventors, oil may be efficiently vaporized by feeding it onto a very hot surface,—the temperature being so high as to prevent the liquid oil from wetting the surface when applied to it. Under these conditions, very little if any carbon, asphalt, or soot is formed due to the vaporization of the fuel oil. The apparatus is shown in Figs. 1 and 2.

Oil flows from a supply tank 10 through a pipe 11 leading to a metering device or valve 12. The pipe 13 then leads through a fuel mixture conduit 14 and is provided with a discharge end 15. The conduit 14 connects with the discharge end of a blower casing 16 equipped with an impeller 17. Communicating with the lower portion of conduit 14 is a casing 18 providing a vaporizing chamber. The bottom of this casing consists of a vaporizing plate 19 against which a flame may be impinged. The conduit 14 is turned on itself to form a U-shaped structure with an outlet just below the plate 19. The outlet 21 of the conduit leads to a cylindrical perforated grid 22 (shown also in Fig. 2). A pilot tube 24 is located adjacent to the grid so as to ignite the combustion gases and also directs heat against the plate 19 to bring it to a non-wetting temperature. In order to insure proper mixing of air and fuel vapors, vanes 25 are provided. The flames emanating from the grid may burn in the air or it may be combined in a chamber formed by the burner casing 27.

The fan casing 16 is equipped with an overflow chamber 29 with a partition wall 30. Upon a pivot pin 31 is mounted a rod 32 supporting a float 33 at one end and a mercury switch 34 at the other end. Should fueloil overflow into the chamber containing the float, the float will rise and tilt the switch so as to break the circuit of the blower motor, and also to operate means for stopping the flow of oil, the flow of gas to the pilot, etc.

Another patent, U. S. 2,661,271, issued Dec. 1, 1953 to the same inventors and also assigned to The Coleman Co., Inc., provides a modification of the method described above. The apparatus is shown in Fig. 3. Liquid fuel from the supply tank 1 passes through the opening 2 of the feed tube forming a series of drops of fuel oil 3. The oil drops fall toward the heated plate 4, which is heated by a burner 5 to a temperature at which oil will not wet the surface. A casing provides a chamber above the plate for receiving the vapor. On one side of the chamber, air is admitted through a blower 8. At the opposite side is a mixing pipe 9, through which the mixture of air and oil vapors passes into the casing 11. A screen 12 prevents the flame from being propagated back into the vaporization chamber 6. Electrical contacts 13 provide a spark for igniting the fuel.

(*Please turn to page 150*)

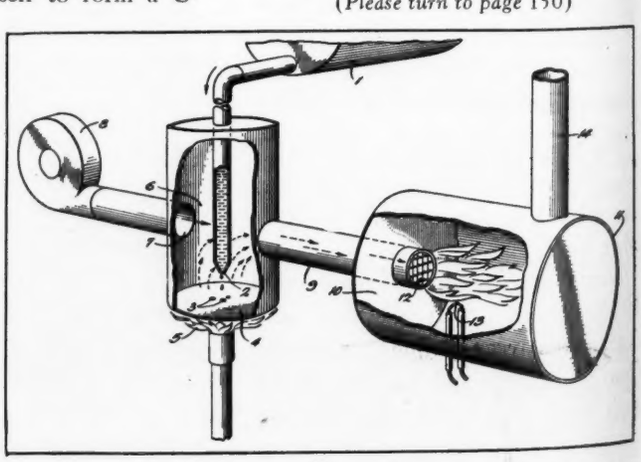


Figure 3

*Patent Attorney, 664 Putnam, Detroit, Mich.

is something
ALWAYS
missing?
(to cut your profit)

...then switch to the one line that meets every selling need

* **EXAMPLE No. 3:** Your own experience will tell you that it's usually easier to sell an established name. This is a premium advantage you enjoy when you offer Bryant. First, because Bryant—in 45 years in business—has earned a reputation for quality in millions of American homes. Second, because Bryant—over this same span of years—has consistently advertised nationally and locally to support *your* selling efforts—*longer than any other manufacturer of automatic heating, air conditioning and water heating equipment!*

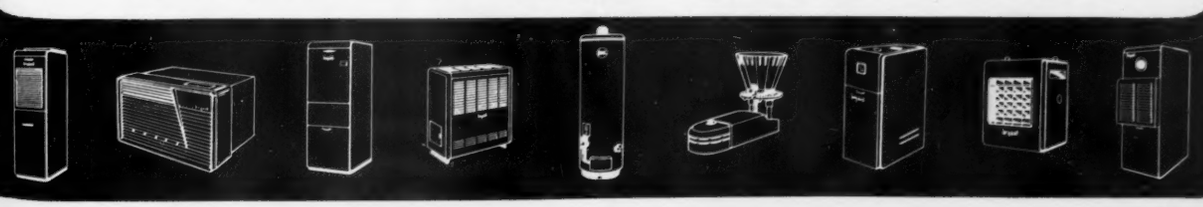
Your nearby Bryant Distributor has complete details. It will pay you to call him today.

bryant®

HEATING AIR CONDITIONING WATER HEATING

1. The most complete line in the industry
2. Quality products—Competitively priced
* 3. Established name—Good customer acceptance
4. Broad, attractive profit margins
5. Local Distributor warehousing and service
6. Factory district representatives and traveling sales training and service teams

Bryant Heater Div., Affiliated Gas Equipment, Inc., 17825 St. Clair Ave., Cleveland 10, Ohio



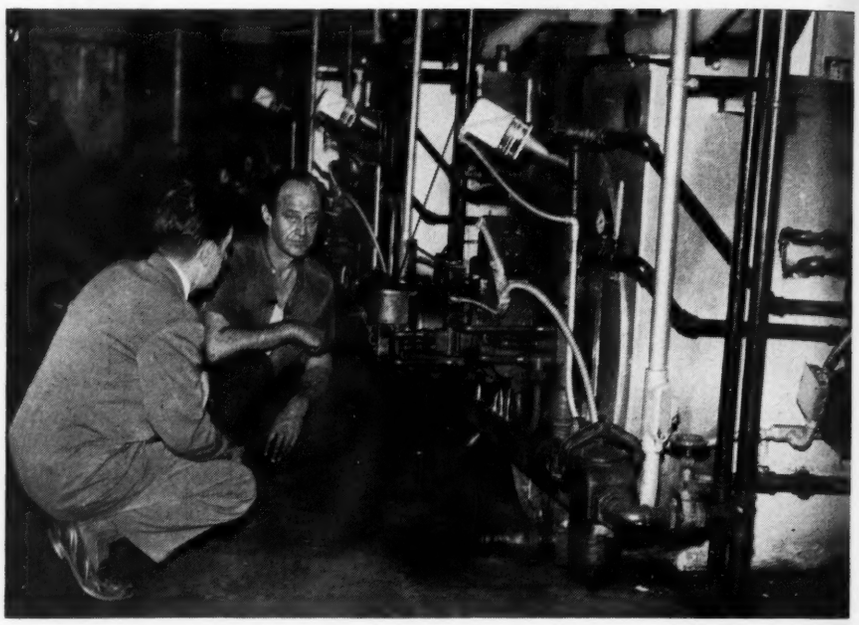
COMMERCIAL & INDUSTRIAL oilburning

Solving Problems of heating heavy Fueloils

Improving old Jobs depends on locating new oil Heaters most advantageously

by

Jean L. Dupuis



FOUR DIAGRAMS of different layouts of oil heaters, which illustrate this article, were one of the results of a country boy's moving to a big city.

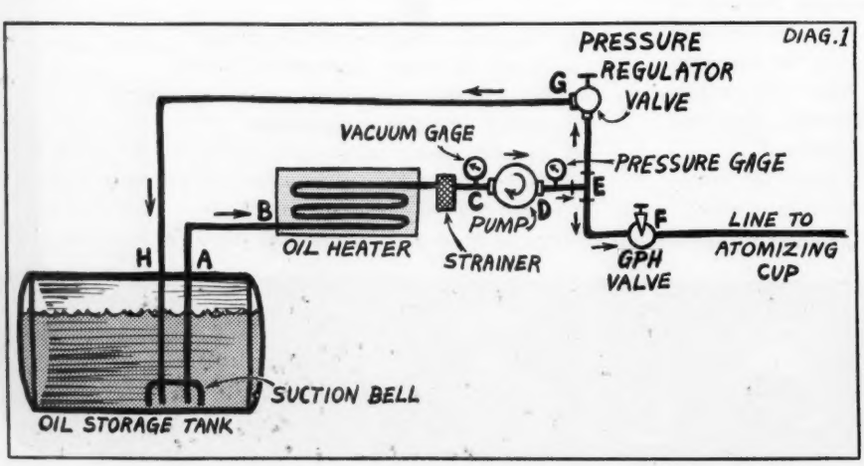
"Back in 1936 I started servicing domestic burners for the leading dealer in my home town," this serviceman explains, "and I soon became top technical man in the dealer organization. So when we started handling horizontal rotary cup burners for Nos. 5 and 6 fueloils a few years later, naturally it was up to me to attend to all technical details of installing and servicing these commercial-industrial burners that were new to us.

"We handled a particular make burner of the rotary cup type, and I learned from the manufacturer's field engineer exactly how to install it and arrange its indirect fueloil heater, which on all our jobs was installed below the waterline of a steam boiler. From about 1938 until recently, I tended to installation and service arrangements of hundreds of this particular make of burner, and got to thinking of myself as a well informed expert on commercial-industrial oilburners.

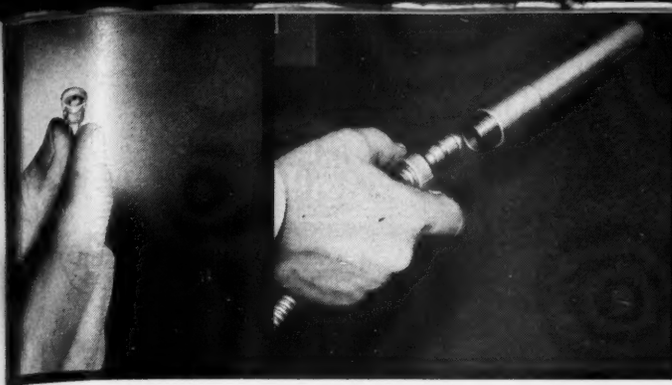
"It was when I came to the city, taking a job as an expert at servicing all makes of commercial-industrial burners, that I found out I was just a boy from the country.

"Whereas I had thought there was just one way to arrange and pipe the oil heater on a No. 6 oil job or on a No. 5 oil job needing a heater—the way I'd learned from this particular burner manufacturer to install the oil heater—servicing a few dozen jobs in the big city taught me that oil heaters can be placed in any of a number of locations. Different manufacturers of horizontal rotary cup burners teach their dealers different methods of solving problems related to heating heavy fueloils, I learned."

He also learned that each different location for an indirect oil heater, on a typical installation of a rotary cup burner having an integral oil pump, has its advantages and disadvantages. These are of great importance when it comes to adding oil heaters to installations which need additional oil-heaters. In his daily wrok of going from one horizontal rotary cup burner to another, this serviceman encounters many installations that need additional heaters for one of three good reasons. First and most important, the heaters on many installations always were entirely too small because in planning the jobs the dealers skimped in sizing the oil heaters—these installations

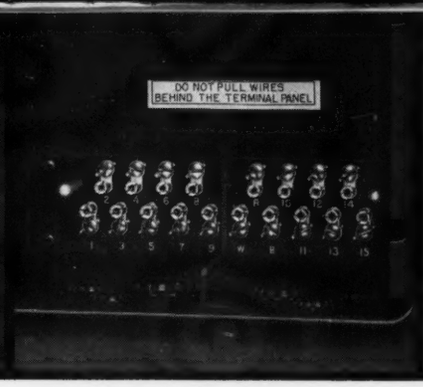


Diag. 1: *Integral parts of a pump-type horizontal rotary cup burner, the pressure regulator valve and gph valve (consider it a needle valve of V-slot type) are simplest parts for permitting adjustment of the firing rate of a big burner. Here the problem of heating the oil is solved simply by using an under-the-waterline heater to raise the temperature of the oil flowing to the burner through the suction line.*

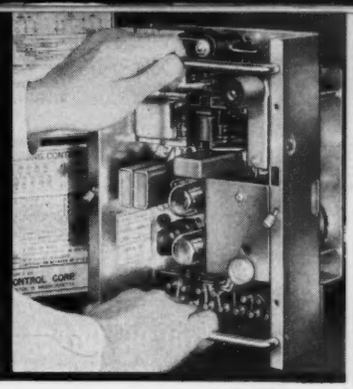


Unique flame-sensitive CELL — sealed, lifetime construction — never wears out. Sees through dirt, soot, smoke.

Amazingly compact SCANNER cuts installation costs — screws on end of ½" pipe. Single scanner detects both pilot and main flames.



Readily accessible TERMINAL PANEL — clearly marked terminals for easy wiring — ample trough space. Allows for extra operating controls and alarms.



PLUG-IN CHASSIS removes in seconds without disturbing wiring — simplifies installation, maintenance, replacement. Husky guide pins, self-aligning sockets insure reliable contact.

Why fireye is the standard...

for flame failure protection and automatic programming of industrial oil burners.

9 out of 10 new package burners are Fireye FP-2 equipped. Ruggedness and performance features brought about this overwhelming acceptance . . . and they'll make a hit with you too!

Proved in 50,000 installations, the FP-2 Control provides safe programming for any burner application — is easy to install and service — gives long-time dependability with minimum maintenance. Components are of superior industrial quality — withstand moisture, vibration, high temperature — give continuous peak performance.

Every unit is cycle-tested equivalent to one month's operation before leaving the factory.

A single, compact scanner provides positive flame failure protection through electronic supervision of both pilot and main flames. Never wears out. Can be used with combination oil/gas burners too, because it *sees all flame!*

From every angle, Fireye FP-2 is designed and built to save you time and trouble. Write today for full information. Combustion Control Corporation, Dept. C20-4, 718 Beacon St., Boston, Mass.

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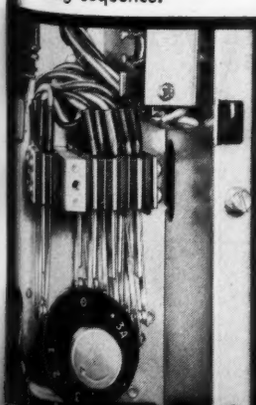
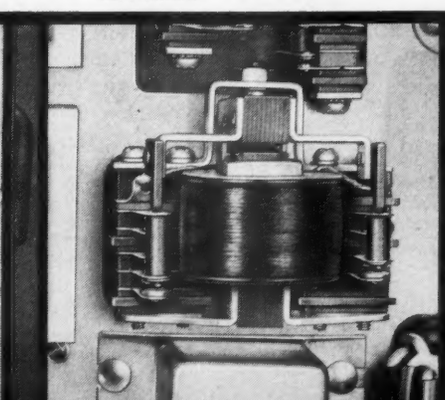
*FIRST AND FOREMOST IN **INSTANT** FLAME FAILURE PROTECTION*

Precision assembled TIMER — snap-action cam contacts — straight phosphor bronze leaves that never need adjustment. Easy-to-read dial indicates programming sequence.



Laminated core MASTER RELAY has vacuum impregnated coil, electrolytic fine silver contacts with extra-heavy contact pressures. Built to outlast the burner installation.



Convenient TEST JACKS permit use of inexpensive DC voltmeter for complete system check without interrupting operation.

FACTORY MUTUAL and UNDERWRITERS' LABORATORIES approval attest to excellence of design and ruggedness. Accepted by all industrial insurance organizations and the U.S. Navy.

* SINCE 1926 * in the application, design and mfg. of pumps — separators — hydraulic accessories

KRAISSL

PUMPS and SEPARATORS for oil burner service

CLASS 50 LIGHT OIL PUMPS

Direct Drive for #1 to #5 oils inclusive
Ask for bulletin A-1330

Reduction Drive for heavy oil
Ask for Bulletin No. A-1193

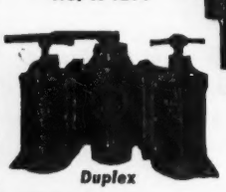
CLASS 60 HEAVY OIL PUMPS

Single and Duplex
Standard and High Pressure Baskets instantly and easily changed — eliminates filter replacement costs entirely.

CLASS 72 STRAINERS —FILTERS

Ask for Bulletin No. A-1214

Single

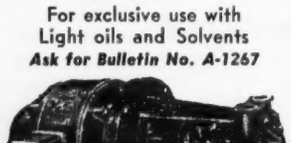


Duplex

for bulk station

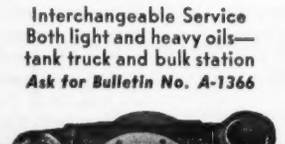
CLASS 60M MOTORED PUMPS

Direct Drive
For exclusive use with Light oils and Solvents
Ask for Bulletin No. A-1267



CLASS 80 TRI-ROL PUMPS

Interchangeable Service
Both light and heavy oils—tank truck and bulk station
Ask for Bulletin No. A-1366



KRAISSL KRAISSL CO. Inc
295 WILLIAMS AVE., HACKENSACK, N. J.

never operated properly, giving high CO_2 readings together with low readings from smoke-checking instruments; to operate efficiently and without producing excessive soot and perhaps chimney smoke, the burners involved must have additional oil heaters.

The second reason many installations need new and bigger oil heaters or additional oil heaters is that the heavy fueloils have gotten heavier and heavier in recent years; therefore heaters that were of ample capacity years ago when they were installed are in many cases undersize today.

Third, the capacity of the oil heaters on some installations has dropped down during years of using the heaters. Although thorough cleaning might bring the capacity of a heater up to what it was when the heater was new, because of the first two reasons being involved often it is better to replace an old oil heater with a much larger heater, or add another heater to help the old heater.

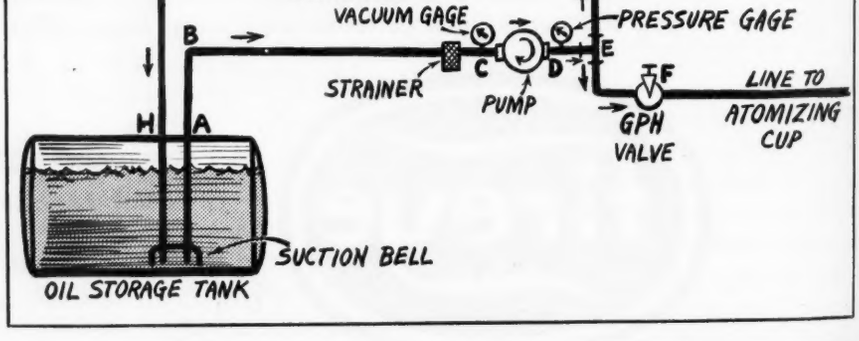
Discussions of all these matters with the serviceman who referred to himself as a boy from the country wound up with the accompanying four drawings and the preparation of this article.

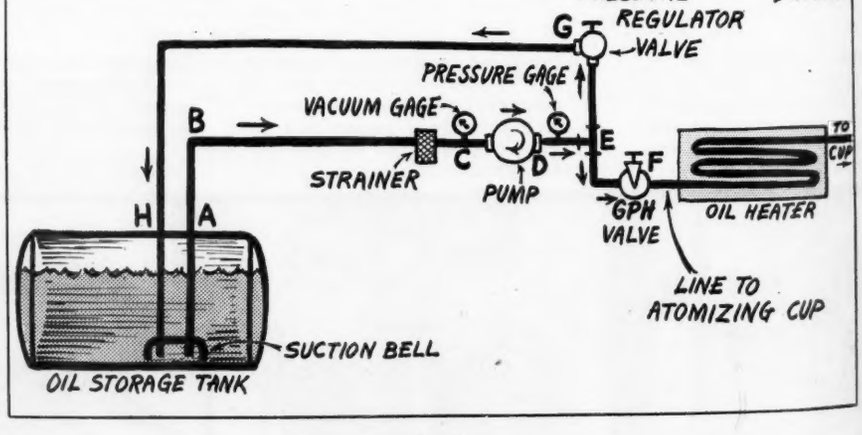
COMMERCIAL & INDUSTRIAL oilburning

This article is confined to the application of under-the-waterline indirect-type heaters to pump-equipped horizontal rotary cup oilburners. Thus it makes no mention of the use of electricity for heating fueloil lines of big burner installations, which is a big subject by itself. Every man who aspires to be an expert in the field of commercial-industrial oilburner installations should become fully informed on modern systems that use electricity to heat oil lines, and truly excellent complete information on such systems is readily available from manufacturers of the equipment made for the systems.

The four drawings that accompany this article show no steam or hot-water coils in the oil storage tanks or suction bells, because many of the problem jobs that need larger or additional fueloil heaters have no such coils.

Suction bells are in the drawings.





Notice the suction lines and return lines terminate in the bells. The idea of using a suction bell is to make available to the suction line most or all of the heat in the hot fueloil being returned to the oil storage tank. For example, 40 gph of fueloil at 130° F. will flow into the suction bell from the return line on a certain installation, while the suction line is drawing oil from the suction bell at the rate of 100gph (burner is firing 60 gph). Then into the suction line flows 130° F. hot oil at the rate of 40 gph, from the return line—together with unheated oil from the storage tank at the rate of 60 gph.

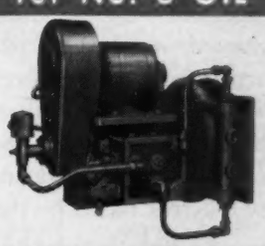
Certain dealers use somewhat different arrangements, intended to be equivalents or substitutes for suction bells. One dealer, for example, puts elbows facing each other at the bottoms of the suction stub and return line stub on one of his jobs. He either bends the stubs or puts a nipple in one of the elbows, winding up with the suction-line opening facing the return-line opening and being but about an inch and a half away from it. This dealer believes this is going far enough in the direction of inducing all of the returned oil, which is hot and thin, to flow into the suction line. Other dealers believe that a suction

Diag. 2: *Here the under-the-waterline fueloil heater is in the return line, a location preferred by experts who declare a suction-line heater causes troubles of pump vapor-lock and gasifying of fueloil in suction line. Thermometers are not shown in these drawings, but at the output side of every fueloil heater—and far enough from it so that heat conducted by the pipes does not cause it to give false readings —should be an oil-line thermometer.*

Diag. 3: *Cup-line fueloil heater is used by certain dealers to provide atomizing cups with fueloil heated to range of 160°F. to perhaps 180°F. Flowing through such a heater at only the gph firing rate of the burner—not at the oilburner's oil-pumping rate which usually is much higher—the oil is heated considerably by a relatively small cup-line heater. Under pressure in such a heater, exceedingly hot oil does not tend to gasify—as it might at same high temperature in a suction-line heater having considerable vacuum.*

for No. 6 OIL

SUPERIOR ROTARY BURNERS

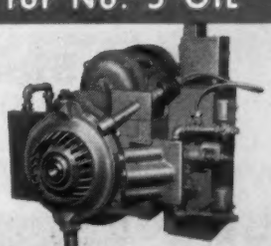


. . . provide dependable manual, semi-automatic, or fully automatic operation . . . burning light or heavy oils, natural or manufactured gas. For new installations and conversions in all types of heat receivers; for heat, process steam or power.

You'll be hearing a lot about the fully automatic . . . fully dependable Superior Rotary Burner.

There's prestige as well as profit in store for dealers who install Superior Burners. Unassigned territories available. Write for details.

for No. 5 OIL



for GAS/OIL

Note THESE SOUND FUNDAMENTALS:

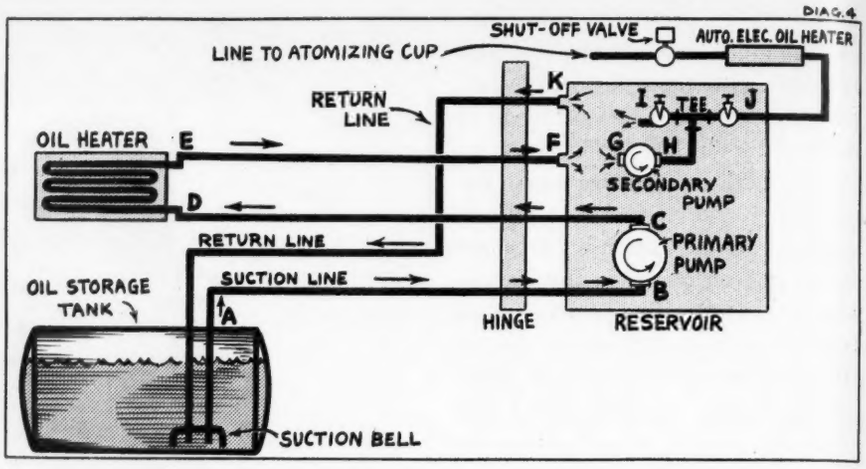
- Time-tested horizontal-rotary design.
- V-Belt Drive for the high cup speed essential to efficient atomization.
- Four-Hole Hinge circulates oil through oil heater so that hot oil is on the *pressure* side of the pump, allowing you to burn oil at higher temperatures.
- Adjustable Air Nozzle provides accurate control of flame contour.
- Dual Pumps and Reservoir combined with Constant Oil Rate Control provide controlled firing regardless of viscosity variation.
- Burn any grade of oil. Also available with combined gas burner for any type of gas.
- Fully automatic in sizes to 500 bhp with dual ignition, and hi-low or fully modulating control.

for performance you can BANK on SUPERIOR ROTARY BURNERS

SUPERIOR COMBUSTION INDUSTRIES INC.
TIMES TOWER, TIMES SQUARE, NEW YORK 36, N.Y.

bell does much better at conserving the heat in the returned, hot fueloil. They point out also that a suction bell does better at permitting any returned air (mixed with returned oil, and in the lines as the result of a suction line leak or of cleaning a suction-line fuel-oil strainer) to escape upwards through the fueloil stored in the tank, instead of finding its way, as it should not, into the suction line.

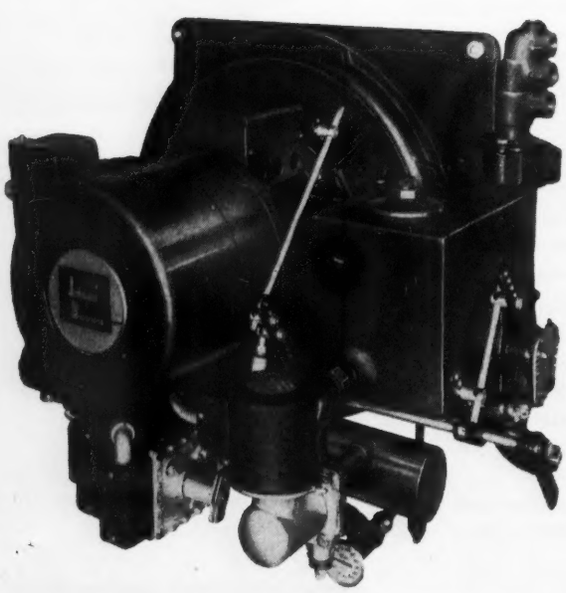
Seeing Diag. 1, certain big-burner dealers will exclaim "Oh-my-gosh!" while others will nod their heads in approval. To dealers and other experts who exclaim or groan at the sight of Diag. 1 or the other drawings, it is pointed out grimly but without passion that jobs using the ideas in these drawings do work. One purpose of this article is to try to explain to some big-burner dealers the oil-preheating practices of other dealers, and to give some of the reasons different dealers follow different tactics on the type of installation this discussion covers. It is assumed that some readers in the big-burner field, like the boy-from-the-country serviceman, want to know about practices different than their standard practice. This article intends to be on a basis of academic interest—not on a basis of argument. It does not argue in favor of any particular location of indirect fueloil heaters. It points out where these heaters may be located, attempts to give a few advantages and disadvantages of the different locations, then lets readers make up their own minds about where to install their fueloil heaters. Different installations and different makes of burners need the fueloil heaters in different parts of their oil piping layouts.



Diag. 4: *Study of this drawing reveals why certain burners have four pipe connections at their hinges; drawing necessarily relates to a particular make-and-model oilburner, but idea of using more than two pipe connections at hinge is used by manufacturers.*

Diag. 1 is of logical basis, accord-

"Cold Starts" with Heavy Oils are Faster, Smoother, Surer with the new JOHNSON *"Fifty-three"* Metering Pump Burner



Built with a positive-displacement Metering Pump . . . a hydraulically balanced 3-Way Magnetic Oil Valve . . . and a high-efficiency Suction Pump, this new Johnson Burner will start up and operate automatically on colder oils than any other burner on the market today.

Never before has any heavy-duty burner so completely overcome the problem of Variable Temperatures and Viscosities. The Johnson "Fifty Three" makes it possible for the first time, to maintain a fixed Air-Fuel-Ratio regardless of temperature and viscosity changes.

The "Fifty Three" is built in 7 sizes, from 25HP to 400HP capacities . . . and all characterized by the high efficiency and fuel economy for which Johnson Burners have long been famous. All working parts are easily accessible for inspection, servicing or regulation. If you have a heavy-duty heating problem, make it a point to investigate the performance of this great new burner. We will gladly send you detailed information.

Johnson Oil Burners

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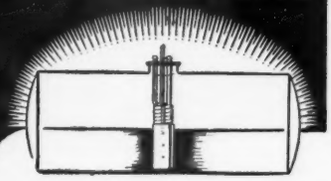

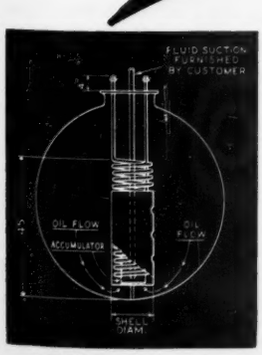

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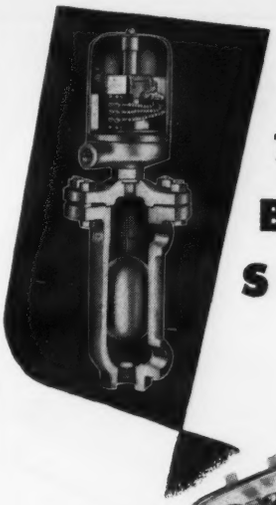

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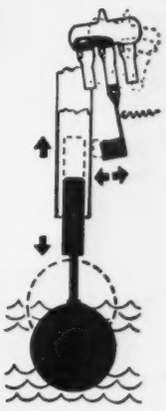

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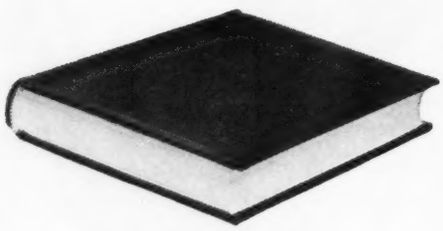

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COMMERCIAL & INDUSTRIAL oilburning

ing to those who use suction-line, and only suction-line, under-the-waterline heaters for pump-equipped horizontal rotary cup burners. Flowing to the heater through suction line A-B, the fueloil is heated before it enters the pump. Advocates of this arrangement point out that the fueloil entering the pump should be heated, therefore to have the oil heater in the suction line is logical. The basis of Diag. 1 is that fueloil heated sufficiently for easy handling by the pump is heated sufficiently for proper atomization. A man who likes Diag. 1 might show you an installation on which No. 6 fueloil comes from the heater at 130° F. to 145° F. He would point out that the suction-line oil is not being heated to the degree that causes it to gasify under the vacuum in the suction line. He probably would argue that, using the excellently designed burners he installs, combustion is excellent without heating the oil any hotter than his suction-line heater heats it. A dealer following this line of reasoning might say that on his jobs there'd be no increase in efficiency as the result of sending the atomizing cups fueloil as hot as 160° F. to 180° F.

Pro and con Diagram 1

Those who don't like Diag. 1 point out that an under-the-waterline heater in the suction line can cause gasifying of suction-line oil and vapor-locking of a pump, if large enough to heat the fueloil to relatively high temperatures for the sake of excellent atomization by the cup. Also, using a heater that produces fueloil at only 140° F., for example, with the burner idle and the boiler steaming for five minutes, fueloil stored in the tubes of the heater will be overheated—its temperature may reach 200° F.—with the result that there may be pumping trouble when the burner next starts. Advocates of Diag. 1 have two come-backs to that: (1) Delay the opening of the burner's shut-off valve for 15 to 20 seconds following starting of the burn-

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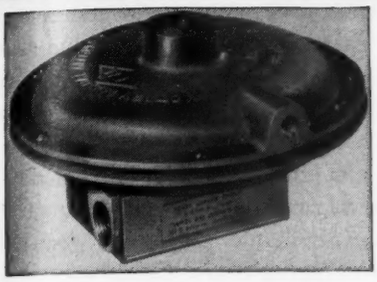

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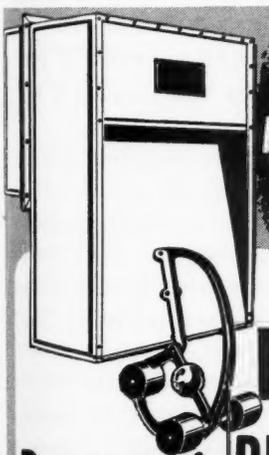

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er motor, and gasifying in the suction line will be no problem by the time the burner starts firing; (2) Use the ideas of Diag. 1 only with a double-pump burner, for slight gasifying that might affect the first pump will have no effect on the second pump and on the control of the burner's gph firing rate.

Whereas for simplicity Diag. 1 suggests primitive means for regulation of the firing rate of a burner using No. 6 fueloil, the principle of using the suction-line heater can be applied also to most highly developed automatic horizontal rotary cup burners made for No. 6 fueloil.

Return line Heaters

Diag. 2 shows the return-line fueloil heater found on many installations. These heaters were installed in return lines by dealers determined to avoid the gasifying of fueloil in suction lines and vapor-locking of pumps mentioned a few paragraphs earlier. There'll be none of these troubles with the equipment in Diag. 2, even if the fueloil comes from the return-line heater at 180° F. Usually it comes from the heater at a much lower temperature, even though the gph flow rate through a return-line heater is necessarily lower than the flow rate through a suction-line heater.

I know dealers handling double-pump burners who use the idea of the return-line heater. Showing installations of which they are most proud (these probably have heaters larger than the dealers usually install), they point out that fueloil at perhaps 140° F. comes from the heaters and returns to the tanks. Oil at from 115° even up to 130° comes in through the suction lines. Like other dealers who have been mentioned, these dealers would have to argue that the fueloil flowing to their atomizing cups is hot enough—heating it additionally would not give appreciably better atomization and higher efficiencies.

Diag. 3 covers the basic idea of a cup-line heater—an under-the-water-line heater in the line to the atomizing cup. As the drawing appears, it may be used for an installation that burns No. 5 oil which a dealer or serviceman decides needs no oil heating for proper piping and pumping, but which

needs heating solely for the sake of better atomization. That's because no heat from the fueloil heater reaches the suction-line and return-line piping or the pump in Diag. 3. The cup-line oil heater serves only to raise the temperature of the fueoil flowing to the atomizing cup.

A horizontal rotary cup burner having an integral pump and only two piping connections at its hinge can't be installed in the manner of Diag. 3. To pipe up a rotary cup burner for use of a cup-line heater, you need hinge connections for:

1. The suction line to the pump on the burner (see "C" in Diag. 3)
2. All the oil coming from the pump, out of the burner proper ("D-E") including the oil to be returned to the tank through return line "G-H" and the oil to flow through "E-F" to the heater
3. Hot oil flowing from the heater, mounted on the side of the boiler, to the burner's atomizing cup.

Cup-line Heaters

Those who use cup-line heaters after the fashion of Diag. 3 must install, then, burners having more than two piping connections at their hinges—if they install burners having integral pumps. Use of a no-pump or "gravity type" horizontal rotary cup burners together with an auxiliary fueloil pump set permits easy application of a cup-line fueloil heater, for with such equipment all the fueloil sent to the burner, through its single hinge connection, is burned. Install a heater in the line to the burner, in that case, and you install a cup-line heater.

Those who favor cup-line heaters often declare that rotary cup burners in general produce highest efficiencies only when given fueloil heated to temperatures as high as 160° to 180° range—temperatures too high, say these men, for best pumping. A cup-line heater has the advantage of permitting you to heat the oil to a temperature as high as you desire, without

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Thus, metered air and oil are accurately proportioned to produce an efficient combustible mixture from high through the middle range to low operation. Both the scientifically designed air shutter-fan mechanism and the Voluvalve are exclusive in Preferred Burners.

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the pump's receiving overheated oil and without suction-line vaporizing trouble, or vapor-locking of a pump. Handling the fueloil at only the gph firing rate, a cup-line heater can be considered highly effective in the direction of improving combustion—if higher temperature for the cup-line fueloil is what's needed to improve combustion.

Actually the principle of Diag. 3 often is coupled with the principle of either Diag. 1 or 2, on rotary cup burner installations using No. 6 fuel-oil, which brings out the point that fueloil is heated on a No. 6 oil job for two reasons:

1. To permit pumping it easily and flowing it through the job's suction line and return line

2. To permit atomizing it thoroughly for the sake of efficient combustion

The men who fit an installation with a cup-line oil heater plus either a suction-line heater (Diag. 1) or a return-line heater (Diag. 2) usually follow a distinct line of reasoning. They find it necessary to heat the No. 6 fueloil to only a reasonable low temperature, say 110° to 125°, to permit pumping it and flowing it through the suction and return lines easily. Their suction-line heater or return-line heater serves for this. According to their way of thinking, best atomization and combustion depends on sending the No. 6 fueloil to the atomizing cup at a much higher temperature, perhaps 160° to 180°. The cup-line heater serves the one distinct function of providing the atomizing cup with fueloil heated to such a high temperature. Occasionally a man is encountered who declares that he has seen jobs that work best with the No. 6 oil flowing to their atomizing cups heated to higher temperatures than 180°.

Questions on Service

Diag. 4 answers questions from servicemen who ask why certain burners have as many as four pipe connections at their hinges. One pipe connection in this drawing serves for suction line "A-B"; assume the primary pump draws oil from the oil storage tank at the rate of 100 gph. Next, all the fuel-oil from the primary pump flows through line "C-D" to the under-the-waterline oil heater, accounting for the second pipe connection of the hinge. Hot oil from the heater flows through "E-F" to the reservoir at the 100 gph rate of the primary pump. Return-line oil leaves the reservoir ("K")—if the firing rate is 20 gph, the rate of flow through the return line is 80 gph. The gph rate of the secondary pump is lower than the gph rate of the primary pump; still assuming 100 gph for the primary pump, assume 60 gph for the secondary pump. To arrive at the 20 gph firing rate, valves "I" and "J" of this "splitter system" would be adjusted so that twice as much oil flows through "I" (this valve would spill oil into the reservoir at the rate of 40 gph) as flows to the atomizing cup through "J" (at 20 gph rate).

A decided shortcoming of all four layouts that illustrate this article lies in the fact that after a prolonged shut-

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down the suction line from the tank to the boiler room is cold. No. 6 oil in it may become as thick as cup grease. On a start-up, this suction line from the tank to the boiler room receives heat only as the result of warm oil, from the return line reaching it and heating it. Thus to heat a cold suction line following a prolonged oilburner "off" period, oil must flow through all the lines. In addition, a cold boiler may have to be fired long enough to heat the water in it to about 150°, before its under-the-waterline heater has appreciable effect in raising the temperature of the fueloil passing through it. Jobs having only the oil heating equipment shown in the accompanying four drawings naturally can cause a serviceman to work, worry, and sweat, then, when he must start them up with the fueloil lines entirely cold because a boiler has been turned off entirely for many hours, or because the serviceman answered a no-heat call a half a day or so after the burner broke down. For easy, raceful start-ups with boilers and oil line stone-cold, additional or different fueloil heating equipment (compared to that in the four drawings) is needed. That's where the use of electricity for heating fueloil can serve very well. All this has nothing to do with the automatic electric oil heater that's regularly part of a horizontal rotary cup burner designed for No. 6 oil, for that heater is in the cup line of the burner and does not help at all in giving heat to the suction and return lines of a stone-cold installation.

❖

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DRAVO CORP., Pittsburgh, announces the opening of a West Coast office at 681 Market St., San Francisco. William A. Walton who has been with the company since 1940 will manage the office.

Dravo's complete line of oil industrial space heaters and process drying equipment will be handled along with Crane Cab and steel mill Pulpit Air-conditioning equipment. The office will also represent Walker Process Equipment, Inc.

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The final days were given over to service and engineering matters. Small groups of dealers dressed in work clothes moved from the classroom to the engineering laboratory and worked with actual equipment under the supervision of factory engineers.

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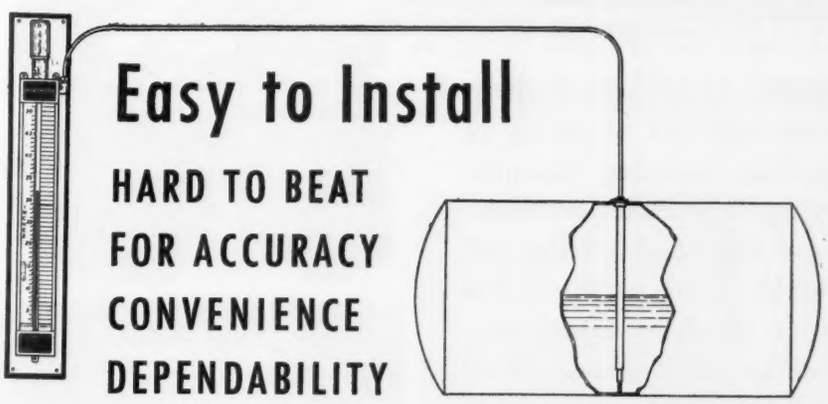

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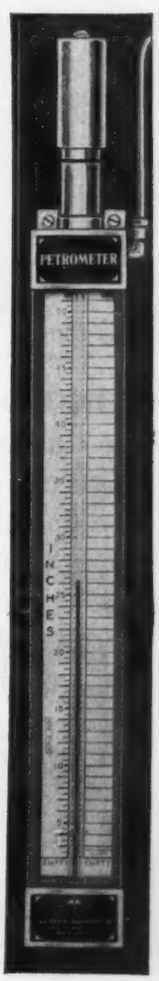

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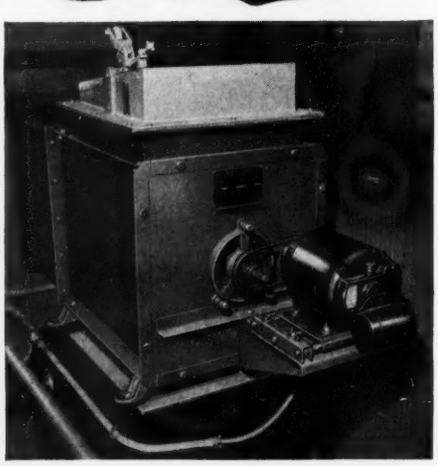

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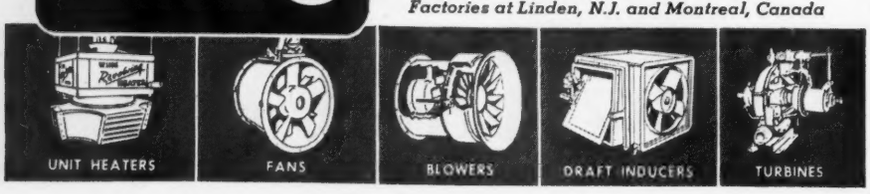

COMMERCIAL & INDUSTRIAL oilburning

Correction for big burner Examination

THE FEATURE in the March issue, "Commercial-industrial oilburner Examination," which begins on page 74, contained an error in the answers given to question No. 2.

The question asked for a good basis to size combustion space for a 200 hp boiler fired continuously by No. 6 fuel-oil and offered four solutions of varying quantities of Btu/hr for each "sq. ft." of space. The answers obviously should have been in "cu. ft." of space as follows:

A. 30,000 to 50,000 Btu/hr per cu. ft. of space;

B. 2,000 to 3,500 Btu/hr per cu. ft. of space;

C. 100,000 to 140,000 Btu/hr per cu. ft. of space;

D. 80 to 100 sq. in. of firebox floor per cu. ft. of combustion space.

"A" is the correct answer.

❖

OHI reports Shipments of comm.-ind. Burners

JANUARY SHIPMENTS of commercial-industrial oilburners, compiled by Oil-Heat Institute of America, Inc., totaled 2,494, 12% down from the 2,829 reported a year ago and 21% down from December 1953 totals. Most of the decrease was registered in the shipment of high pressure gun burners commonly used in the smaller apartment houses.

During January there were 939 horizontal rotary cup burners shipped, including all capacities, plus 1,368 high and low pressure gun burners, with capacities from 5 to more than 30 gph, and 56 mechanical, air and steam atomizing burners in the capacity range of 30 and more gph.

Completing the total were 131 combination oil and gas burners, 70 horizontal rotary cup, 43 pressure burners and 43 air and steam atomizing.

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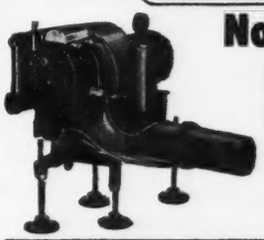

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Everyday Snags

Getting around damp firebox Difficulties

He attended a good school and read many books and magazines to learn about oilburners, yet this lad who had worked at servicing burners for two years did not know what to do about starting up with a water-soaked firebox.

"It's like this," he told his boss over the phone. "Because this boiler room was flooded, the firebox is soaking wet. Rotary cup burner firing about 30 gph of No. 5 oil therefore won't burn its oil properly. When I try to start up, only about one-quarter of the oil shooting into the firebox will burn. I don't get a healthy, complete flame. Then the ignition system shuts off and the fire goes right out.

"So I wired up for continuous ignition, figuring on heating up the box with the measly little flame I can keep going in that way. But after an hour of trying, the firebox is as wet as ever. The water on its floor is covered with a layer of cold, thick oil. It seems what I'm trying won't work, or if it will work will keep me here all day. Is there any special trick for starting up with a water-soaked firebox?"

His boss told the serviceman to use the same trick that's been published in FUELOIL & OIL HEAT for starting up safely a new job with a stone-cold, damp firebox. That is, first build a bonfire in the box.

"Be careful," the boss warned, "because you should have done this before you put all that unburned oil into the firebox. There may be fireworks for 15 minutes when you start burning the gallons of oil you've got spread over the water on the firebox floor. If you'd used this trick when you first found you had trouble firing the burner, you could have built a big bonfire right away to dry out and heat up the firebox. As things stand, now you've got to make a small bonfire first. Make it in the front of the box to dry out that part first. Use lots of newspaper, cardboard cartons, and things like that. Then be certain to use wood, lots of thin pieces—kindling wood. With the

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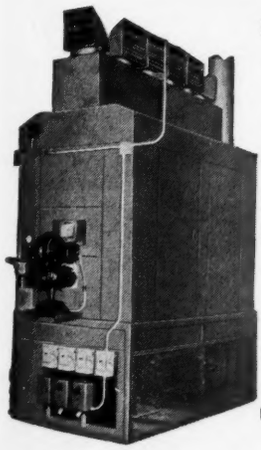
SPACE HEATERS
THE MOST MODERN, ECONOMICAL AND FLEXIBLE METHOD OF HEATING LARGE AREAS



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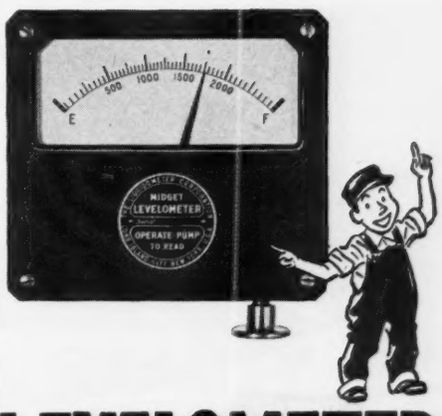

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"LIQUIDS WORTH STORING ARE WORTH MEASURING"
THE LIQUIDOMETER CORP.
36-19 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

bonfire blazing away, try firing the oilburner."

Excellent judgment is needed and the serviceman must be careful, but the bonfire is the best way to handle wet firebox difficulties in the field of domestic burners as well as the field of commercial-industrial burners.

Dealer finds Hazards in overfire water Coils

THE BEST PART of the mail received by the editors of FUELOIL & OIL HEAT consists of letters from dyed-in-the-wool oilburner lovers who discuss technicalities of items that have appeared in the magazine. Here's an excellent example of such a letter. This one caused much scurrying for dependable data on the point brought up by the writer. Coming from a heating contractor in Moorefield, W. Va., the letter reads as follows:

I have just read an article in the February issue starting on p. 79 regarding a heating coil in an oilfired furnace to heat a booster tank ahead of an electric water heater.

I have been under the impression that it was unwise to install a water coil or "generator" over the firebox of an oilburner. In fact, it has been my understanding that to do so is against Underwriters' rules.

Finding a coil in the combustion space of a furnace when we install a burner, we always take it out because these coils last only a few years. They start leaking, usually at the point which has been hottest, which naturally is in the firebox. A small spray from a leak could cause a lot of trouble.

The scurrying of the FUELOIL & OIL HEAT editors that was started by this letter failed to bring from voluminous files any indication that Underwriters' Laboratories has ever gone on record as having dislike for overfire coils or castings used to preheat water.

Questions on the matter were rushed to the fountainhead of all information on UL likes and dislikes—which is, of course, the UL headquarters in Chicago. An exceedingly prompt reply provided fullest details.

None of the Standards of the National Bureau of Fire Underwriters forbids or even refers to this practice, the reply stated. As a matter of fact, it went on, there are doubtless thousands of these overfire coils or castings existing in some of the older oilfired conversions of furnaces and boilers which originally were fired with solid fuel.

The writer of this letter from UL headquarters (a most highly respected oldtimer in the oilheating industry) had noticed, he said, that the article on this subject in FUELOIL & OIL HEAT covered some of the precautions related to prevent soot deposits and to locating coils and castings so that burning out will be unlikely. He finds that the use of overfire preheat coils and castings for both furnaces and boilers may regain some popularity as a result of the appearance of the article. He can see no hazard as the result of water leaking from an overfire coil or casting, used in connection with an oilburner depending for safety on overflow and collection of unburned oil. Collecting in the overflow device with the burner idle, leaking water would shut off the burner "on safety." Burn-

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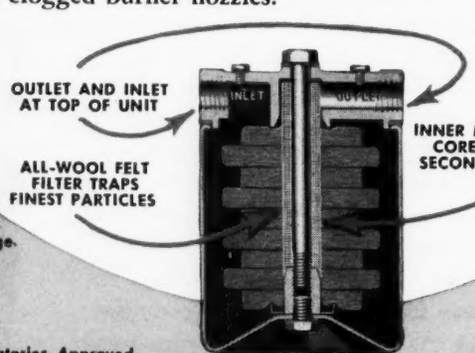
General FUEL OIL FILTERS

STANDARD MODEL 1A-25

Veteran oil burner servicemen call *General* Fuel Oil Filters "the best money can buy." Two-fold, positive filtering removes the finest particles, improves operation of oil-fired furnaces, water heaters, space heaters. Service "call-backs" are eliminated, too, since the General 1A-25 and 2A-700 allow only *clean* oils to pass—greatly reducing possibilities of clogged burner nozzles.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Remember —Plugged flues cost heating dollars! CLEAN RIGHT Soot Remover removes a ½" layer of of soot in 2-5 minutes . . . safely and thoroughly. Made for General Filters, Inc.

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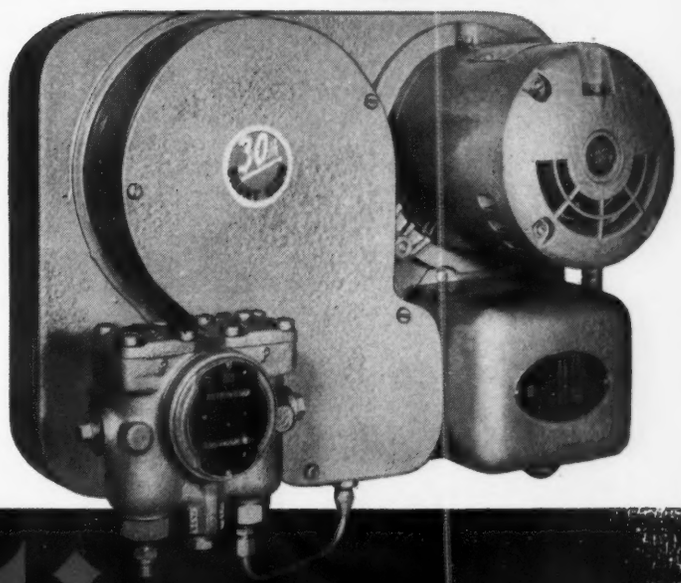

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Here is a burner that fits right into the streamlined design of today's modern home . . . and, more than that, fits the demands of today's homeowner for quiet, efficient, trouble-free operation and real fuel economy. These are the things that make sales.

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ers having stack controls or the equivalent would not have the same protection, he points out, but it seems unlikely that the creation of steam in the firebox would cause any hazard before the leakage was discovered.

"So far as we know," the UL expert concludes, "the matter never has been discussed in any of the committees and it is unlikely that it will be recognized in any of the Underwriters' Laboratories Requirements for Appliances or the National Board Requirements for Installation."

EVERYDAY SNAGS editor has two points to add to this discussion:

1. In planning installation of an overfire coil or casting, don't overlook the sentences in the February issue article on this subject which warn you that the coil or casting must be high over the oilburner's firebox so that it will not chill the flame tips; it must not be in the refractory firebox or where it will chill the main flame, the article said. Also, with the coil or casting in place, you should obtain CO_2 and smoke readings as good as were obtainable before you installed the coil or casting.

There are at least four excellent makes of oilfired boilers and water heaters on the market having copper coils above flames of power oilburners. The coils of these last for years; they do not leak. Have your overfire coils and castings receive heat similarly from oil flames located sufficiently below them, and they will last similarly.

2. Don't mix up all this with ideas of heating fueloil by running it through coils, pipes, or castings located over oil flames. That's an entirely different matter, and it is 100% unsafe!

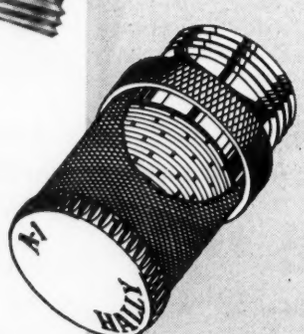
Carboned Nozzles Can't Be Cleaned Profitably

SAVE MONEY BY INSTALLING *New* **DELAVAN NOZZLES**

DELAVAN TYPE A HOLLOW CONE NOZZLE

●Try as you may, you can't clean a carboned nozzle without losing money. It takes a service man's valuable time to attempt the job. Then, usually loose carbon will work into the nozzle slot after the burner is started again. That means a "call back" very soon after the cleaning job.

Service men have learned that it pays to replace a carboned nozzle with a new DELAVAN NOZZLE. You save on costly labor. You eliminate expensive "call backs".



INSTALL DELAVAN NOZZLES with HALLY FILTERS ATTACHED

Write for Catalog 148A

DELAVAN *Manufacturing Co.*

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Bulldozer vs. oil Line results in no Heat

In ten-degree outside weather last January, a serviceman and a home owner scratched their heads because this pressure burner, less than a year old and giving trouble for the first time, simply could not draw oil from its outside tank. Yes, the tank was almost half full, and the job had a return line. A vacuum gage proved the fuel unit was healthy, able to develop a suction-line vacuum higher than 25". There'd been no evidence of suction line leaks, and it seemed unlikely that the copper tube suction line had suddenly become leaky.

Taking a chance that this might do the trick, the owner had the tank filled. That worked, for the burner then could be started easily. It kept on running.

Talking with his neighbors, who had seen the house being built, gave the owner an idea of the cause of the trouble. After the outside tank and the suction and return lines had been installed, a bulldozer had tangled with the oil lines while it was grading the lawns. Seemingly not broken, but just pulled out of the ground a bit, the oil lines had been tucked back into the lawn. The burner ran all right when tested, so the builder concluded the oil lines checked out as not damaged.

The owner reasons now that the suction line was pulled up out of the tank about 18", however, so that now the burner runs out of oil with the tank about one-third full. Comes summer, he'll dig up the lawn and make things right himself, he says.

When you sell CHRYSLER AIRTEMP
you've got something extra to sell with . . .

NOW... NEW CHRYSLER AIRTEMP "PROJECT" FURNACES designed to help you sell to BUILDERS

Recognizing the increasing influence of the project builder on new home construction and the trend to year 'round air conditioning as a "built-in" feature, Chrysler Airtemp introduces new "Project" Furnaces designed especially for this market. These new furnaces will appeal to the volume user, the project builder who wants a name people know and have confidence in—the Chrysler Airtemp name. And, these new furnaces are engineered for teaming with Chrysler Airtemp cooling to provide perfectly balanced Year 'Round Air Conditioning.

Here is an entering wedge to the profitable builders' market in your area—a new addition to the many extras you sell with when you sell Chrysler Airtemp Heating. Take a minute to review 7 of these important extras listed below. Then fill in and return the coupon for complete facts and figures on the franchise that can give you the greatest selling help.

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Consumer Confidence—People know and respect the Chrysler Airtemp name—associate it with engineering leadership—have complete confidence in the products which carry it.

Double Profit Opportunity—Chrysler Airtemp Cooling, which is so easy to install with the new Chrysler Airtemp Furnaces, gives you the chance to sell Year 'Round Air Conditioning when you install the furnace or later—for a double profit.

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8-Year Warranty on new, super-efficient, corrugated-design furnace heat exchanger gives your customers important additional confidence in their choice of Chrysler Airtemp.

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Pacific Convention

(*Begins on page 71*)

number of horror stories of bad practices and these, of course, provided considerable entertainment for the audience.

He then put a lot of emphasis on the need for more schools for oilheat training, mentioning the New England and New Jersey groups as examples.

The third and most significant recommendation was that we find ways to deny gas utilities a subsidy that is unavailable to other fuels. He described how some of the Eastern lines had been retarded in their completion by protests from an aroused citizenry. These protests resulted from inadequate compensation for easement rights across private property.

As an example Burroughs told how the Algonquin line to New England was originally scheduled to cost $32,000,000 for completion early in 1952. It actually was completed in October 1953 at a cost of $59,000,000 due to difficulties in construction and litigation caused by these private property fights. The gas industry, he pointed out, gets "eminent domain" because the public does not know its rights. Instead of the traditional $1 per rod the pipeline people under pressure have paid damages from $5 to $20 per foot, for easements. "Why does the public let them get away with it," he went on to ask, and emphasized that our industry must make these facts known.

Burroughs again pointed out that gas utilities work quite hard to avoid the cost of maximum safety but they can be forced to comply. As an example he mentioned that the utility in Rochester after the recent disaster in which 24 homes were wrecked and several persons killed has now spent $600,000 to install regulators in every person's house.

Burroughs recommends that oilheating groups employ professional consultants, preferably lawyers, to block the efforts of gas pipelines up to the point where they are forced to pay true value for the private property their lines cross and forced to spend the necessary cost for maximum safety facilities . . . pointing out that each 2½ feet of 30" natural gas pipeline has the explosive energy of a 500 lb. TNT bomb.

Matheson on Selling

At the final session on Saturday the principal speaker was W. A. Matheson, president, Portable Elevator Manufacturing Company, Bloomington, Illinois, and former President of Williams Oil-O-Matic whose title was "The Selling Man— 1954 Model."

Because he had grown up in the City of Portland and first gone into business there "Matty" discussed a number of his early day friends who are still in the business. Then he told how two years ago he had bought control of Portable Elevator Manufacturing Company "so I couldn't be fired."

He discussed in an entertaining fashion some of the differences between selling farm equipment and household equipment of the oilheating type. Matty pointed out that you can't use normal sales arguments on the average American farmer. This is because the farmer is accustomed to doing so much of the mechanical work himself that convenience has no great appeal. He

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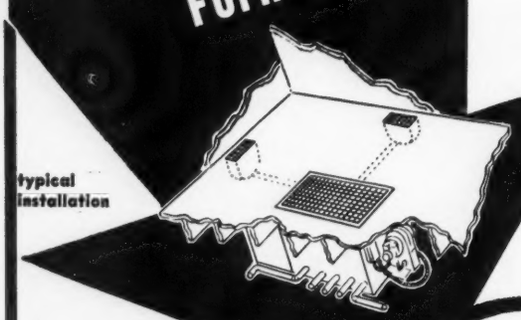
HEAT IN EVERY ROOM with KLEER-KLEEN's New Perimeter Furnace!

New dealers can take advantage of a new style heating for the American Home—the KLEER-KLEEN Perimeter Furnace with central heating—built in! This pressure burner equipped furnace looks like a floor furnace, but is exactly the opposite! The top grill is a cold air return while the bottom half of the furnace is the warm air heating chamber.

KLEER-KLEEN's Perimeter Furnace — the most revolutionary, yet practical furnace made. For extra profit sell this KLEER-KLEEN engineering and sales triumph.



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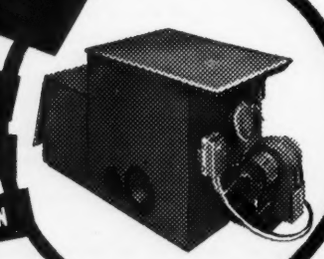

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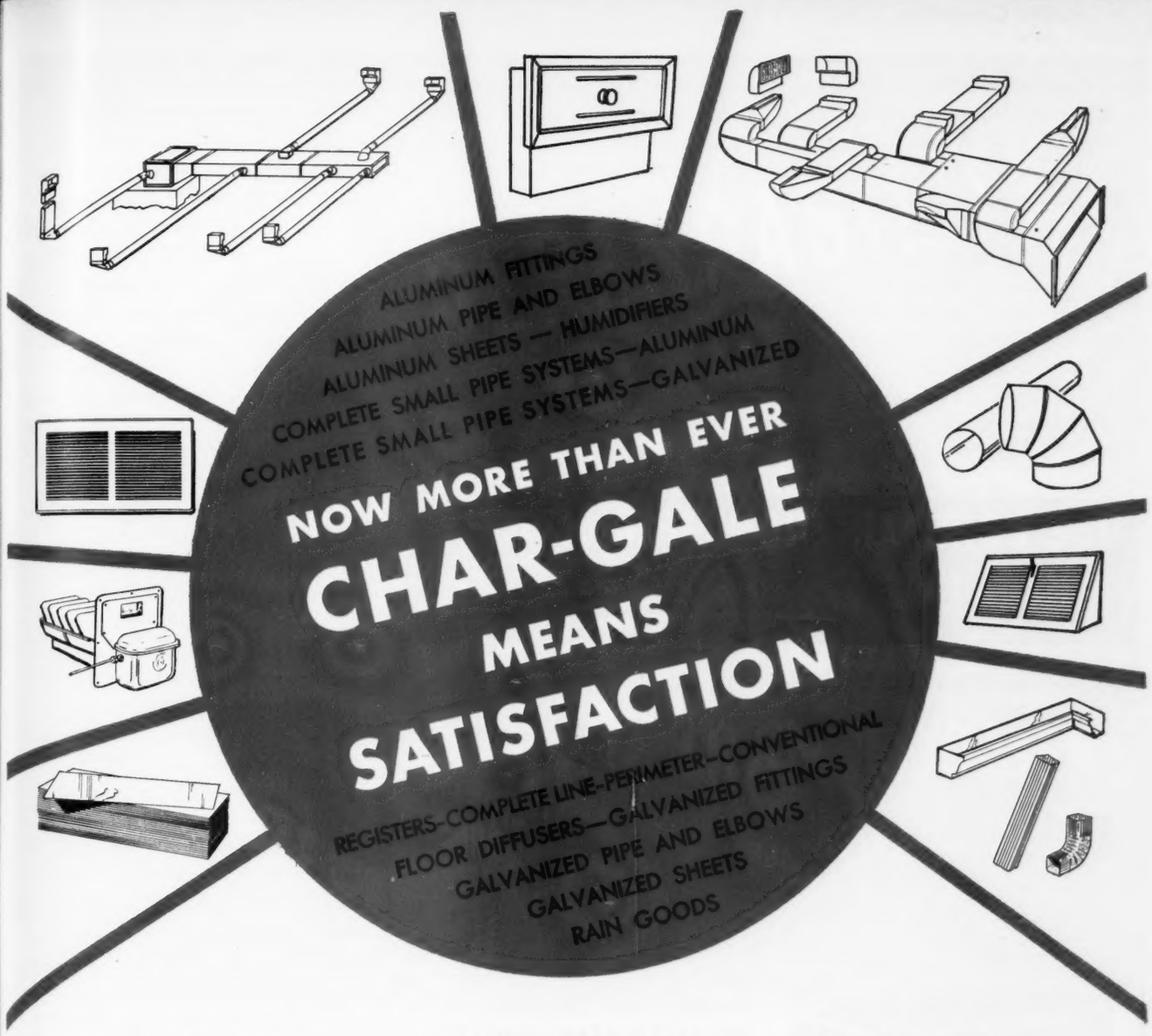

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The Char-Gale truck fleet assures you of fast delivery in flawless condition, right to your door. You can keep your inventory down, yet be sure that your supply of fittings and related material will be there *when you need it.*

BIG SAVINGS

With Char-Gale, you save storage space, and you save time and money in figuring costs. In addition you can get liberal truckload discounts when ordering any combination of the above units. Quotations on request.

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ANOKA, MINNESOTA

pointed out that in the farm implement business the farmer has to do as much work after he gets the equipment as the factory did originally.

Speaking of gas competition coming into the market, Matty emphasized "No one buys on judgment, we are creatures of emotion. The big job is interpretation . . . this I believe."

Then he told of his first experience in fighting natural gas back in Chicago in 1933. One morning every newspaper and dozens of billboards around the city broke out with the story that you could install gas heat in your home on a free trial basis—"Put it into your furnace and find out." The utilities spent a million dollars on advertising and put 400 salesmen on the street. The offer was that the gas heat user would pay $3 a month rent for the first year and at the end of the year could buy the gas burner for $150 less the monthly rent paid.

Most of the oilheating dealers in the city chopped their expenses and sat down to wait. Matty was then Chicago branch manager for Williams Oil-O-Matic. He locked his sales force in a room until he had taught them not only a word for word presentation but even taught them enthusiastic gestures to use in congratulating people who had signed up to use gas heat.

The congratulation was based, of course, on the fact that they were accepting automatic heat which was still in the introductory stage throughout the country. His men were able to start from that point and switch over enough of the families that had made gas heat applications that by August of that same year his branch was breaking all records for oilheating sales.

Matheson's strongest points were built around the fact that oil now controls the Northwest market. He pointed out that if his audience were in Kansas City or Oklahoma City where cheap gas is firmly entrenched they would sit back and grin. But in the Northwest it's oil, always has been oil for automatic fuels, with the result that the industry has little to do but maintain its present position. "You're in the driver's seat," he emphasized, "You can't be put out unless you elect to be put out."

He demonstrated how the oilheating group must go back and do the kind of things that we all did when we were building up this industry.

There were four other speakers at the convention, Robert Gray, Editor of FUELOIL & OIL HEAT, talked on the subject "You're Still Eating." The principal points in Gray's talk are covered on the Editorial Leaks' page.

The other speakers were Miner H. Baker, vice-president, First National Bank, Seattle, Milton A. Foland, vice-president, Pacific National Advertising Agency, Portland, and George L. Randall, public relations director, Richfield Oil Company, Los Angeles.

All talks were tape recorded and copies can be had if desired by writing Dale Josephson, Oregon Heating Industries, Inc., 1221 Failing Building, Portland, Oregon.

❖

Kenneth M. Fournier has been named assistant to the president of Skuttle Manufacturing Co., Milford, Mich. He has been with the company for the past 18 years.

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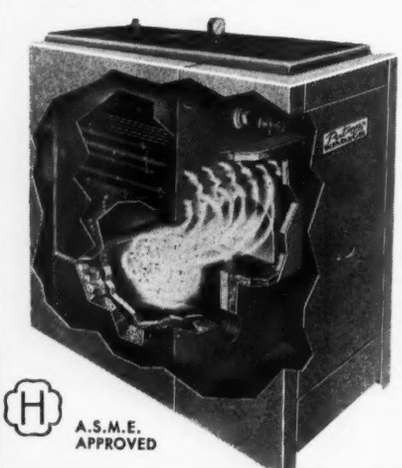
Now You Can Get Wet Heat in Any Capacity . . . from One Source!

Because of the many years of dependable performance, proved in thousands of installations, Portmar can now offer you a complete line of Oil or Gas Fired Heating Boilers for Steam or Hot Water Systems plus a complete line of Tankless Twin Coil Volume Water Heaters for instantaneous, sanitary hot water.

Yes, Portmar's A.S.M.E. APPROVED line is going places because the trade knows that they can get a correctly specified boiler or water heater to meet *all* their heating needs.



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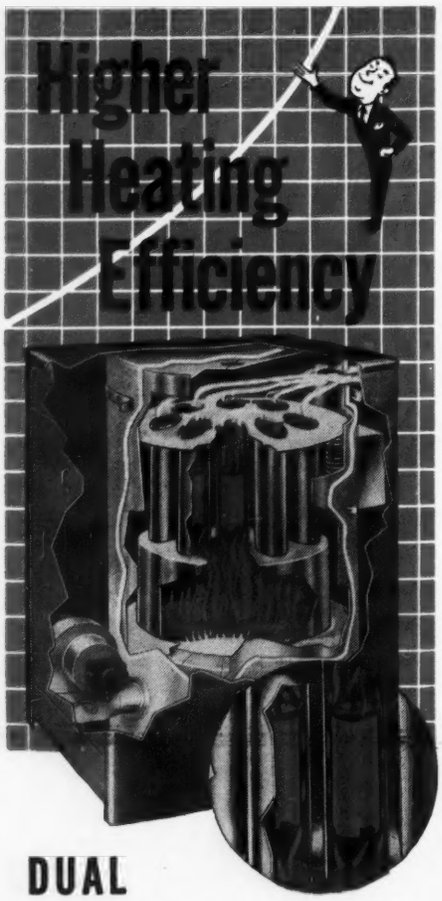


DUAL ECONOMY

STAINLESS STEEL INTENSIFIER TUBES

Installation economy for you **because the Dual 8 is easy to install and service: the cabinet is installed after all piping is completed; all controls are on the front of the boiler; the intensifier tubes are readily accessible.** ***Economy for homeowners*** **because they get faster heat with less fuel: the intensifier tubes see to that by cutting chimney heat loss and speeding heat transfer. Then add A. S. M. E. Code Construction and contagious customer satisfaction ... that's a recipe for more sales and more profit.**

Write for new folder: 1033 New Britain Ave., West Hartford, Conn.

*U. S. PAT. NO. 2,560,275

Acme DUAL 8 BOILER BURNER UNITS

ACME HEATING DIVISION

THE UNITED TOOL and DIE CO.

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to reach the editor by the 15th.

Service Managers amend By-laws and Constitution

ORGANIZATIONAL changes were made at the second annual meeting of the National Association of Oil Heating Service Managers in Boston, March 10.

The constitution and by-laws were amended so that three directors could be designated to serve on the Board of Directors of the Distribution Division, Oil Heat Institute, and one director be designated to serve on the National Board of OHI. This action was taken pending final action on the group's application for membership as a chapter in the Distribution Division to be considered during OHI's annual meeting in Philadelphia, May 18.

It was voted by the group to submit the by-laws and constitution for legal incorporation under the laws of the state of New York.

Officers were elected to serve through to the next annual meeting: President, Hugh W. McKee (also nominated by the group to be a director of the National Board of OHI); vice president, John Engels, Jr.; treasurer, Jack Davidson; and secretary, William H. Wildes.

McKee appointed John Engel, L. M. Robinson and Charles Burkhardt as designate directors to the Distribution Division, OHI.

A committee (Frank Knorr, Bill Campbell, and Mike Kilchenstein) are making plans for a booth representing the organization at the OHI show in Philadelphia.

The president appointed the following chairmen of committees: John Engel, Constitution and by-laws; Jack Davidson, Finance; William Carroll, Nominating; Mike Kilchenstein, Domestic Burner Policy; George Earle, Publicity; Frank Knorr, Industrial Burner Policy; Ralph Inglehart, Membership; George O'Neil, Labor; William Gross, Program.

Jersey fueloil Dealers form Petroleum Educational Council

AT A MEETING on March 5 in Mountainside, N. J., 45 fueloil dealers from 14 Jersey counties met to form a Petroleum Educational Council. Willard Hedden, president of the Fueloil Distributors Association, presided.

Hedden was elected president of the group. Other officers are Robert Crane, vice president; Roger Allen, vice president; A. W. Rich, secretary; Ira Van Vliet, treasurer and John Sibarium, technical adviser. Two directors from each county will be selected from county organizations to serve on the council.

The council proposes to extend oilburner service schools to every area of the state. The group intends to establish standing committees in each county or city to study existing building codes and in general act in the interests of the oilheating industry.

A public relations program, including the training of lecturers to promote oilheating plus a press bureau to prepare releases for newspapers, radio, television and other media, is planned.

OIL BURNER IGNITION ASSEMBLIES *for* industrial and residential use

CROWN offers a complete line of standard oil burner electrode assemblies, cable assemblies, hardware, terminals and UL approved cable. Quality is the finest available. Ceramic insulators are UL approved. Prompt, efficient, reliable service on all orders—large or small.

Complete Service

CROWN engineering service is complete. Call or write today for complete information on standard or custom-built assemblies. Literature on request.

Crown Engineering CORPORATION

KEYPORT • NEW JERSEY

music to her ears!

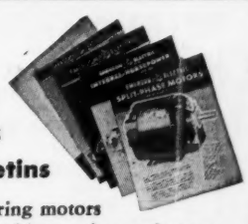
A sweet note to the ears of the modern homemaker is the low, efficient hum of her automatic clothes dryer. Clothes lines, clothes pins and a damp basement full of clothes are no longer necessary.

In many of America's best known clothes dryers, an Emerson-Electric motor works quietly and efficiently.

You, too, can benefit from Emerson-Electric's 63 years of motor manufacturing experience. If you require standard motors in ratings from 1/20 to 5 h.p., or hermetic motors from 1/8 to 20 h.p., write for complete information.

THE EMERSON ELECTRIC MFG., CO.
St Louis 21, Mo.

Write for these Emerson-Electric Motor Data Bulletins



Manufacturers requiring motors 1/20 to 5 h.p. can profitably use these reference guides. Specifications, construction and performance data are included for these motors:

- ☐ 485-A Capacitor-Start
- ☐ 485-B Split-Phase
- ☐ 485-C Integral
- ☐ 485-D Fan-Duty
- ☐ 485-E Oil-Burner
- ☐ 485-F Jet Pump
- ☐ 485-G Blower

EMERSON ELECTRIC
MOTORS • FANS — APPLIANCES

Voluntary contributions from independent suppliers, major oil companies and allied trades will support the organization.

API offers Mats to dealers for fueloil Advertising

A FREE ADVERTISING MAT SERVICE offered by the American Petroleum Institute is explained in a booklet containing 36 samples, eight of which feature themes that can be used by fueloil dealers in local advertising. Proofbooks have been distributed by district offices of the Oil Industry Information Committee to local oil men and newspapers or a copy can be secured from the API at 50 West 50th St., New York 20, N. Y.

Mats of all of the advertisements are being supplied without charge. They are presented in the booklet under three groupings: fueloil jobbers, service station dealers and a number for general use by any company. All serve as prestige and sales builders, with seasonal and service topics emphasized.

The fueloil advertisements all are 3 columns wide by 150 column inches deep, are highlighted by well-done illustrations, a small amount of sales copy and ample space for a local outlet to include his company name, address, telephone number and such other material as he normally uses to identify his organization or product.

The foreword in the booklet suggests that rather than run one or two of the advertisements occasionally, the better plan is to map out a continuing program to get the most benefit from the investment.

Maryland OHI blueprints industry-wide sales plan

KICKOFF meeting for an industry-wide campaign to first, rebuild morale among members of the industry and second, sell more of the Baltimore public on buying oil heat was held by the Maryland Oil Heat Association, March 16.

According to census figures a near saturation for new oil business has been reached in Baltimore; and the introduction of natural gas in 1951-52 has also retarded new business possibilities.

Tom Carson, Sherwood Bros., Baltimore, pointed out that to combat these factors pessimistic views must be removed from the industry. "This change in attitude must be reflected on all levels—from president to office boy," he said.

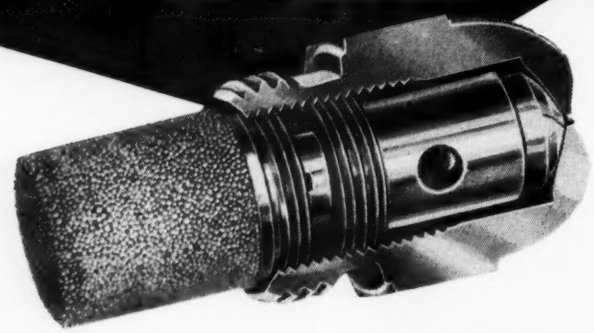
With this goal in mind he suggested the following program which was amended and accepted by the membership:

A luncheon meeting especially for sales personnel (salesmen and managers) using visual and personal presentations to emphasize hard selling.

Probably in May when service and delivery people have more time a meeting for them to be directed by the local service managers' club. Statements from people in authority will state that the fueloil business is a sound one in which no defeatist attitude should exist.

A third morale-building meeting to be held for all office personnel—clerks, telephone complaint receivers, inquiry departments and dispatchers—will emphasize confidence in the industry as well as in separate organizations.

A GOOD TIP from Monarch

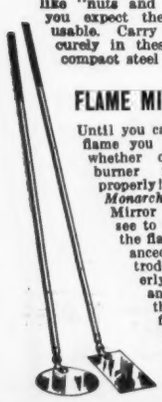


"24" & "48" Nozzle Boxes

Don't jumble your nozzles loosely in your tool box like "nuts and bolts" if you expect them to be usable. Carry them securely in these sturdy, compact steel boxes.

FLAME MIRRORS

Until you can see the flame you can't tell whether or not a burner is firing properly! With a *Monarch* Flame Mirror you can see to check that the flame is balanced, the electrodes properly located, and that there is no flame impingement on the firebox or air cone.



6 Monarch Features

1. Every Tip individually tested for Spray Angle and Capacity—your guarantee of uniformity.
2. Self-Centering internal assembly always produces a balanced spray—No lopsided fires.
3. Micro-Finish of Tip and Disc seats plus extremely close manufacturing tolerances insure accurate capacity control.
4. Will handle any domestic oils currently being supplied in the United States or Canada.
5. Tip, Disc and Locknut are made of a High Chrome Stainless Steel for maximum heat and wear resistance.
6. Five different series available for producing various spray characteristics — all developed through hundreds of fire tests in both Laboratory and Field work.

WRITE FOR CATALOG "O"

DEALERS: Buy from your Monarch Jobber

Monarch MFG. WORKS, INC.

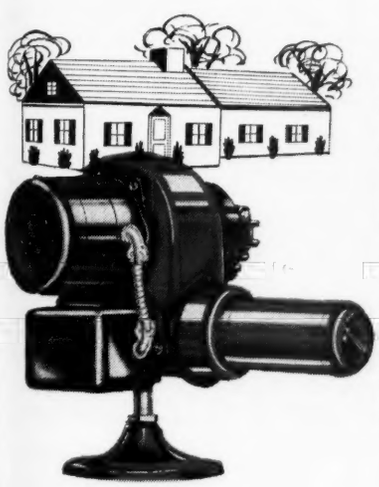
2503 E. ONTARIO ST., PHILADELPHIA 34, PA.

Canadian Sales Agents: (Except B.C.) Canadian General Filters Ltd., 2679 Danforth Ave., Toronto 13, Canada

GET ANY JOB ...ANY SIZE

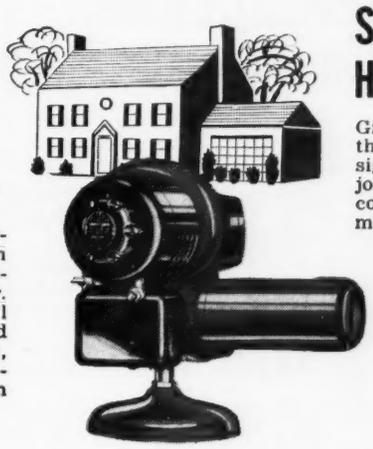
with Gilbarco's complete oil burner line

Gilbarco oil burners handle them all... large, average or small homes... commercial or industrial jobs. And Gilbarco's exclusive ECONOMY CLUTCH helps save on heating bills for your customers... helps *you* make sales faster.



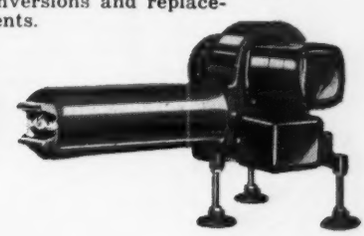
SELL THE VOLUME MARKET—

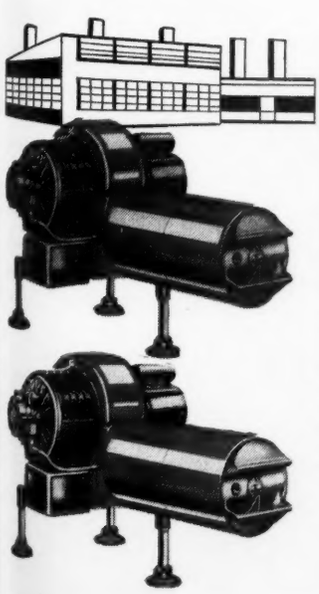
Get orders for average-size homes with Gilbarco's easy-to-sell GCS oil burner. A rugged model with the patented Economy Clutch, greatest sales-building feature in the industry!



SELL THE LARGE HOME MARKET—

Gilbarco's GC 1 and GC 2 models with the exclusive Economy Clutch are designed for really big home heating jobs. The ideal burners for large conversions and replacements.





SELL THE COMMERCIAL AND INDUSTRIAL MARKET—

Gilbarco's commercial oil burners with the patented Economy Clutch are available in 3 different sizes (2 shown here). Handle jobs with capacities up to 10,000 sq. ft. of steam and 16,000 sq. ft. of hot water.

SELL THE BUILDER'S MARKET—

Your answer to small home heating is Gilbarco's Model GBS. A *famous name* burner for the low price new home market.

Sell units, too — Gilbarco offers a *complete line* of warm air conditioners, suspended furnaces and boiler-burner units.

Gilbarco

Gilbert & Barker Mfg. Co.
West Springfield, Mass.
Toronto, Canada

Warm Air Heating Association offers three revised Manuals

THREE NEW EDITIONS of design and installation manuals have been issued by the National Warm Air Heating and Air Conditioning Association, Cleveland 14.

Major revisions have been made in Manual 5, "Code and Manual for the Design and Installation of Gravity Warm Air Heating Systems," and in Manual 11, "Design and Installation of Summer Air Conditioning for New and Existing Residences." Also revised is Manual 10, "Small Pipe Warm Air Perimeter Heating."

Prices of these editions are $1 each. Members of the Association are entitled to a 40% discount.

Clark elected President of Oklahoma Oil Jobbers

MARTIN CLARK, Martin Clark Oil Co., was elected president of the Oklahoma Oil Jobbers Association at a meeting in Oklahoma City, Okla.

Other officers for 1954 are: K. C. Jeffries, Jeffries Oil Co., Miami, vice president; Jack Newman, Jr., Paul A. Long and Sons Oil Co., treasurer; and Leo E. Meyers, Denver Oil Co., secretary.

Directors are as follows: Floyd Sumrall, Sumrall Oil Co.; V. N. Williams, Williams Oil Co.; J. O. Kolb, Kolb Oil Co.; Carl H. Chastain, Chastain Oil Co.; J. W. Countryman, Jr., J. W. Countryman Oil Co.; R. E. Copeland, Copeland Oil Co.; and Pat Campbell, Campbell Oil Co.

Organization formed by New Jersey sales Representatives

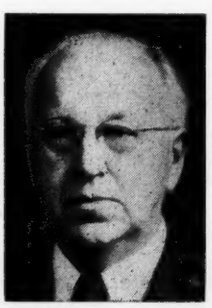
SALES REPRESENTATIVES from New Jersey met recently and formed their own association. Norman Ward was elected president.

Other officers of the group are as follows: John Traynor, vice president; Herman Stalinsky, treasurer; Arthur Goodman, secretary; and Jack M. Klotz, publicity director.

Dr. Frey retires from API; Rumoshosky heads Marketing

DR. JOHN W. FREY retired March 1 as Director of the Division of Marketing, American Petroleum Institute, New York 20, and Adam J. Rumoshosky was appointed his successor. Dr. Frey joined the Institute in 1947 after having served as special assistant to the Director of the Oil & Gas Division of the Interior Department. He will continue to serve the industry as a special consultant to Frank M. Porter, president of the Institute.

Rumoshosky had been associated with the American Petroleum Industries Committee for 17 years before becoming Marketing Division's Associate Director last fall. The Division's headquarters have been transferred from Washington to the main offices in Radio City, New York.



Frey

Rumoshosky

When Replacing Defective Pumps---

PUT THE SAME PUMP BACK— with a SID HARVEY REBUILT EXACT REPLACEMENT — it will be BETTER and COST YOU LESS

No piping changes . . . No mounting changes . . . No wasted time.

It doesn't look patched up when you're finished, because it's an *exact* replacement and improved with the latest techniques.

Sid Harvey's has exact replacement pumps for over 1150 oil burner models including Heavy oil. All rebuilt to the equivalent of new or better.*

SAVES UP TO 50%

You pay about half the cost of a new pump, but many cannot be bought new at any price. Guaranteed of course.

See Sid Harvey's catalog for prices and listings on all replacement parts used on oil, gas and stokers. Write on your letterhead if you do not have one.

*** Records show Sid Harvey rebuilt 43,376 of the 149,762 rebuilt pumps used as replacements in 1953.**

SID HARVEY INC.
VALLEY STREAM, NEW YORK

29 Sid Harvey Stores to Serve You

BOSTON, WORCESTER, PROVIDENCE, HARTFORD, BRIDGEPORT, BROOKLYN (Bay Ridge-Bensonhurst), BROOKLYN (East Flatbush), JAMAICA, VALLEY STREAM, MOUNT VERNON, GREAT NECK, HEMPSTEAD, BABYLON, NEWARK, UNION CITY, STELTON, CAMDEN, NORTH PHILA., WEST PHILADELPHIA, SOUTH PHILADELPHIA, ALLENTOWN, YORK, READING, BALTIMORE, WASHINGTON D.C., ARLINGTON, NORFOLK

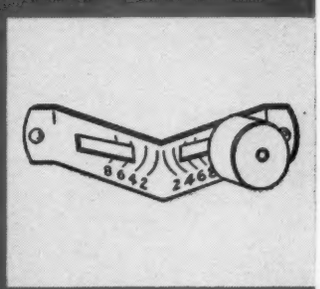
another brilliant model in a famous line, the

field "R-C"

Calibrated Draft Control

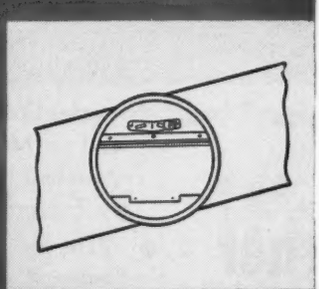
CALIBRATED

for easy setting from .01" to .09", permitting a quick, accurate setting tailored to either a horizontal, vertical or sloping installation.



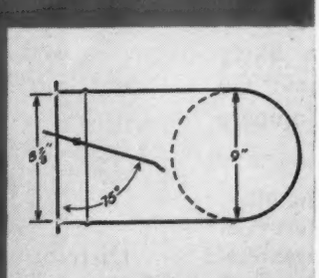
EASILY LEVELED

on sloping flue because ring and gate can be rotated in collar. A level control is more accurate, trouble-free. And only a round control can be leveled on a sloping flue.



HIGH CAPACITY

assured by smooth, unobstructed ring designed for maximum air induction, and gate which is light in relation to size, assuring instant response.

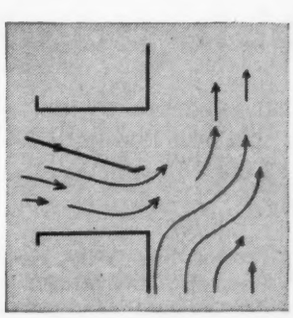


Featuring the "Air-Flow" Gate

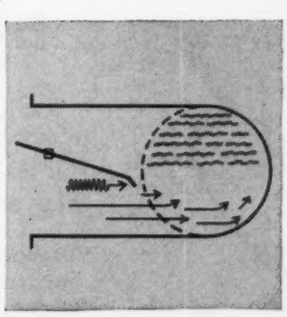
with REVERSIBLE Wing Flap for Horizontal, Vertical or Sloping Installation

Draft action in a vertical flue is different than in a horizontal flue. Therefore, unless compensated for in some manner, accurate regulation is not possible for both horizontal and vertical installations. The Field "Air-Flow" gate provides this correction — makes a simple calibrated setting remarkably accurate for any installation, horizontal, vertical, sloping.

FOR VERTICAL INSTALLATIONS: Detail below shows "Air-Flow" gate turned inward to compensate for special air turbulence in vertical installations that tends to open a gate too wide and thus reduce draft below desired minimum.



FOR HORIZONTAL INSTALLATIONS: "Air-Flow" wing turned outward so air entering the control exerts a lifting action when gate is in wider open positions — thus assure maximum air intake when needed.



The Field "R-C" combines the *convenience* of calibration, easy-to-level *roundness*, the *flexibility* of the "Air-Flow" gate, the *speed* of singlestrap attaching, the *capacity* of an open ring, the superb *accuracy* of friction-free gate mounting and other patented features. And all are yours at a very attractive price. Available in full 7" and 9" sizes (fits 6" thru 10" flues without air leakage or distortion). Painted ring and gate. See your jobber or write us for full details.

field

DRAFT CONTROLS

FIELD CONTROL DIVISION of H. D. Conkey & Co. — Mendota, Illinois

AFFILIATES: CONCO BUILDING PRODUCTS, INC.—Brick, Tile, Stone ● CONCO MATERIAL HANDLING DIVISION—Conveyors, Hoists

Three new Members appointed to API Marketing Committee

THREE NEW members have been appointed to the General Committee of the Division of Marketing of the American Petroleum Institute according to Frank M. Porter, president.

They are Marc F. Braeckel, Sinclair, replacing J. E. Dyer of the same company. E. H. Collins, Esso Standard, replacing L. E. Ulrope, Esso. E. J. Webster, Phillips Petroleum Co., replacing A. M. Hughes, also of Phillips.

ASHVE selects New England Site for 1954 summer Meeting

SWAMPCOTT, MASS., 11 miles north of Boston, has been selected as the site for the 60th semi-annual meeting of The American Society of Heating and Ventilating Engineers June 28 through 30.

Chairmen planning the meeting are as follows: R. T. Kern, Fitchburg, Mass., general chairman; A. L. Hare, Boston, Mass., vice chairman; Dean Lauren E. Seeley, Durham, N. H., honorary chairman; and B. H. Spurlock, Jr., program and papers committee chairman.

McGrath will speak at New York management Meeting April 29

W. L. MCGRATH, president, Williamson Heater Co., Cincinnati, O., will address the 9th annual Industrial Engineering Conference. Sponsored by the Society for the Advancement of Management and the Management Division of the American Society of Mechanical Engineers, the conference will meet in New York April 29 and 30.

McGrath served as member of the U. S. Employer Delegation to the Annual Conference of the International Labor Organization in Geneva, Switzerland for four successive years (1949-1952).

Franklyn Waltman addresses Meeting of Vermont Oilmen

VERMONT OILMEN gathered to hear a talk by Franklyn Waltman, public relations director, Sun Oil Co., in Rutland on March 16. The meeting was sponsored by the Vermont Oil Industry Information Committee.

The speaker was introduced by Frederick Heerde, Sun Oil Co., Burlington, Vt. Following Waltman's address the Ethyl Corp. presented its "Fire Power" show.

A workshop session during which OIIC committeemen examined techniques for reaching the public with the facts about their industry was held before the dinner.

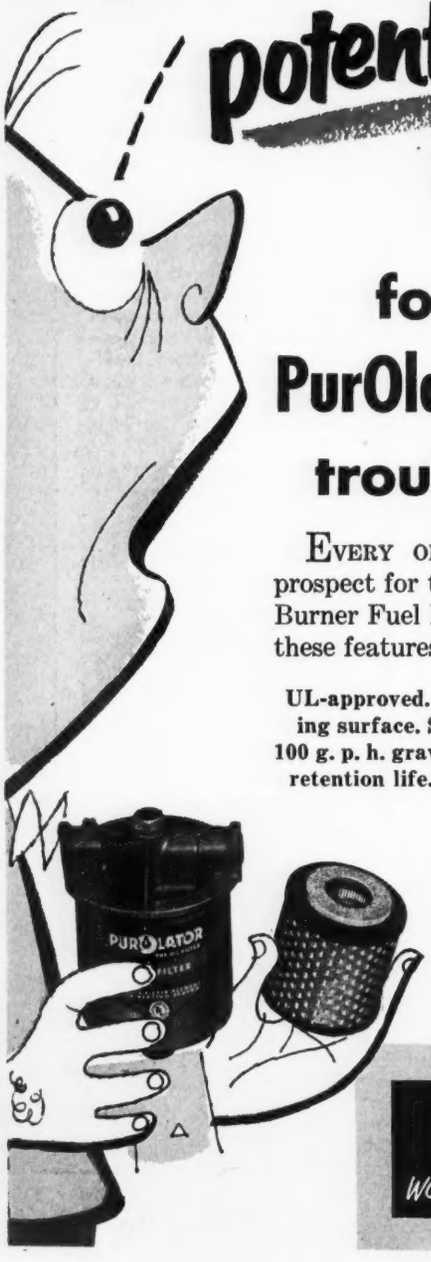
Distributors schedule Jersey Governor for Convention Talk

PLANS HAVE been completed for the 1954 convention of the New Jersey Fuel Oil Distributors at the Berkeley-Carteret Hotel, Asbury Park, N. J., on April 28 through 30.

The Honorable Robert B. Meyner, governor of New Jersey, has been scheduled as guest speaker at the April 30 luncheon.

Topics of panel discussions are "Inroads of Gas Heat," and "The service Department—a Bulwark against Gas Competition."

6,992,600 potential customers



for this new PurOlator* Oil Burner trouble-stopper!

EVERY OIL BURNER OWNER is a likely prospect for this new Purolator Micronic* Oil Burner Fuel Filter! Best in its class. Compare these features—

UL-approved. Anti-spilling cover. 200-sq. in. filtering surface. Stops dirt down to .0002 in. More than 100 g. p. h. gravity flow rate. 7,000 gal. per year dirt-retention life. Refill fits all popular filter housings.

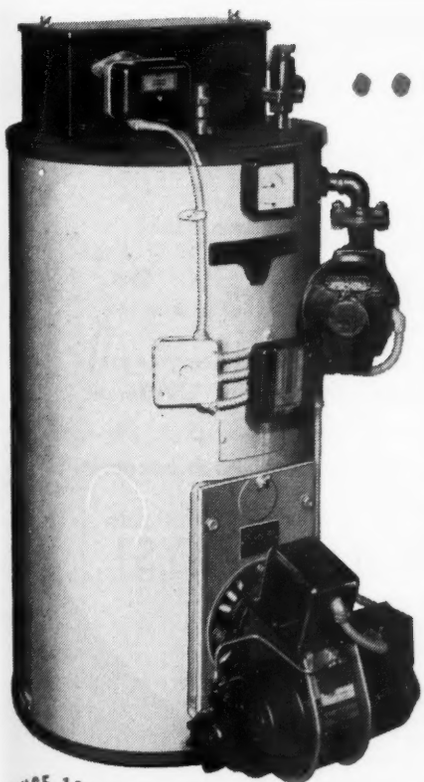
Send for details and name of nearest supplier.

*Reg. U. S. Pat. Off.

PUROLATOR PRODUCTS, INC.
Rahway, New Jersey and
Toronto, Ontario, Canada
Factory Branch Offices:
Chicago, Detroit, Los Angeles

PUROLATOR
WORLD'S FINEST OIL FILTER

says George H. Hertz, President-Treasurer, Hertz Supply Company, Inc., Allentown, Pa.



...it's the Nº 770 Boiler-Burner Unit"

"Fitzgibbons' new 770 fills the great need for a top quality oil fired unit competitively priced. *Our customers like everything about it — the low cost of installation, unfailing domestic hot water and the practical design which is ideal for servicing. The 770 is a worthy addition to the Fitzgibbons line of steel boilers which is so popular with our trade."*

Heating men everywhere are talking about the Fitzgibbons 770. It's so complete—all pre-assembled, wired, ready to hook-up—that the trade has found it no longer pays to make up a boiler-burner unit on a small job.

The 770 is shipped fully equipped as shown at the left, and all the boiler specialties needed for a forced hot water job are included. The boiler carries the A.S.M.E. stamp and is rated by the S.B.I. See your jobber for the whole story or write for the 770 catalog to the Fitzgibbons Boiler Company, Inc., 101 Park Avenue, New York 17, N. Y. Address Dept. FO-4.

SINCE 1886 MOST ECONOMICAL IN FUEL THE FITZGIBBONS BOILER 1886

The Fitzgibbons Boiler®

SBI

See the Fitzgibbons Residential Line, Booth 509-511, at the National Indoor Comfort Exhibition, Philadelphia, Pa., May 16th to 20th.

Portland burner, oil Dealers establish Credit Association

AT A GENERAL meeting on January 26 the Portland members of the Oregon Heating Industries formally adopted articles of incorporation and by-laws for the Portland Oil and Burner Dealers' Credit Association.

The Board of the new association will be as follows: president, Chuck Holloway, Liberty Fuel & Ice Co.; vice president, Roy Lindsay, Economy Oil Co.; secretary, Ross Ward, Commings-Ward Oil Co.; and treasurer, Lloyd Miesen, Sunset Fuel Co.

The directors are Walter Anderson, American Oil Co.; Denton Bacon, North Coast Oil Co.; Andy Cook, John T. Carson Co.; Ian Shaw, Albina Fuel Co.; and Jim Yeomans, Multnomah.

Governor Lodge; state officials are Guests of CPA in Hartford

THE CONNECTICUT Petroleum Association had Governor John Lodge, Attorney General William L. Beers, Highway Commissioner G. Albert Hill and other State of Connecticut officials as guests at their Fourth Annual Banquet, March 18, in Hartford.

Otis H. Ellis, general counsel of the National Oil Jobbers Council, Washington, D. C., spoke on "Margins and Supply in '54."

Officers of the organization which has a membership of more than 100 jobbers of petroleum products in Connecticut are as follows: Walter P. Macauley, Wyatt Inc., president; Franklin L. Kundahl, Crown Petroleum Corp., vice president; Irvin A. Shiner, Connecticut Refining Co., treasurer; W. D. Roth, Dahl Oil Co., secretary; and Larry Edwardson, executive secretary with offices in New Britain, Conn.

Folsom, Yntema discuss Taxes at Cleveland NPA Meeting

MARION B. FOLSOM, Under Secretary of the Treasury and Theodore O. Yntema, vice president, Ford Motor Co., Detroit, discussed the government's fiscal policies at the semi-annual convention (April 14-16) of the National Petroleum Association in Cleveland.

Formerly treasurer of the Eastman Kodak Co., Folsom presented the current views of the Administration on tax policy. Yntema in turn offered the businessman's point of view.

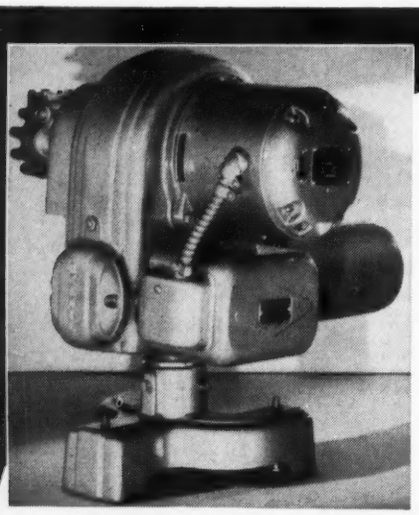
During the three-day meeting the Board of Directors met and the Industrial Relations and Traffic Departments held group sessions.

I-B-R School records 8000 Graduates; lists Schedule

WITH AN AVERAGE attendance of 55 students the I-B-R School of Modern Heating has totaled more than 8,000 graduates of the course sponsored by the Institute of Boiler and Radiator Manufacturers, New York.

Following is a schedule of the school until July 1:

April 20-22, Detroit, Mich., American Legion Memorial Home Association, 401 West Lafayette; April 27-29, Fort Wayne, Ind., American Legion Post No. 47, 315 West Washington; May 4-6, Rockford, Ill.,



"We Have 75% Fewer Service-Adjustment Calls with REXOIL Installations . . ."*

. . . that's the conclusion reached by an independent survey organization after interviewing a representative group of Oil Burner Dealers in two sample cities.

Translate the saving involved into payroll dollars and it becomes a tidy bonus profit for Rexoil dealers.

REXOIL DEALERS MAKE MORE MONEY IN 4 WAYS!

*25% LESS INSTALLATION COST
This is really an extra 25% clear profit for the REXOIL dealer. There's no easier way to make money than just not to have to spend it.

*PRACTICALLY NO REPAIRS
Repairs are always expensive to the dealer and annoying to the consumer. Seldom does any REXOIL ever need repairs.

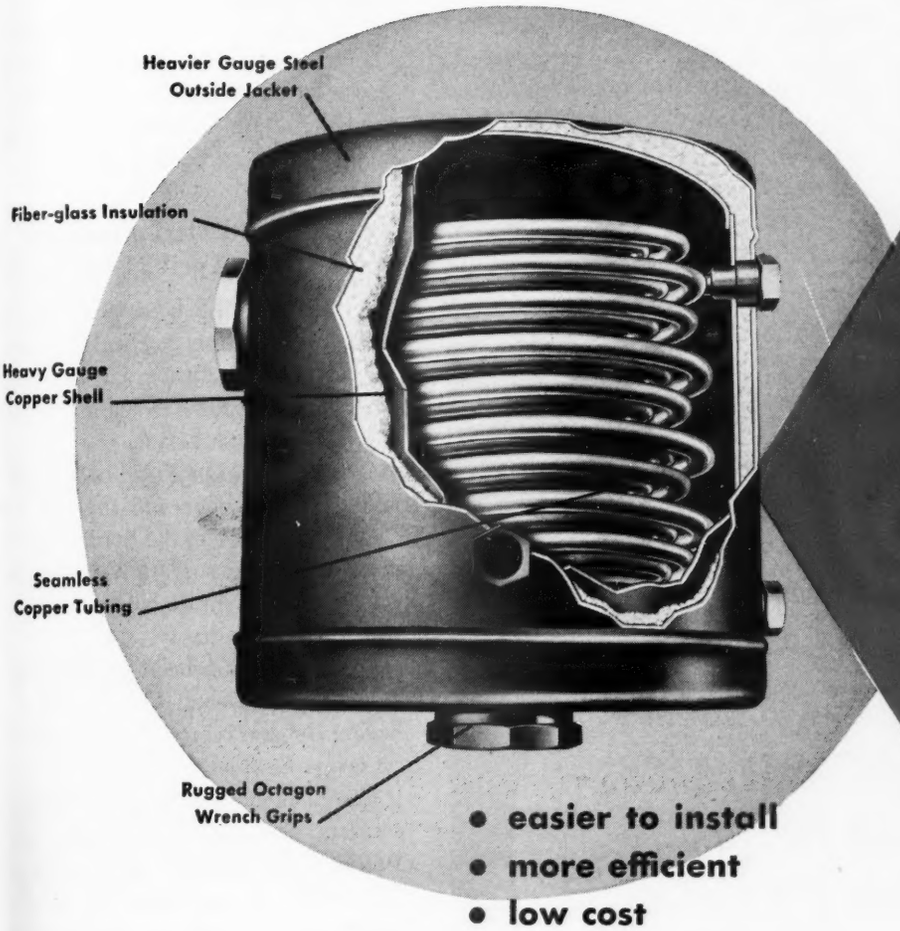
*FREE ENGINEERING SERVICE
For those hard-to-figure big jobs—REXOIL engineers will prepare all plans and specifications without cost to you.

*ADVERTISING ASSISTANCE
Prepared mailing pieces, newspaper mats, point of purchase displays, etc. are supplied to REXOIL dealers FREE. You pocket this saving, too!

JOBBER AND DEALER INQUIRIES INVITED!
* Conclusions resulting from independent survey of oil burner dealers.

REIF-REXOIL, Inc.
37 CARROLL ST.
BUFFALO 3, NEW YORK

Compact General All-Copper Tankless Water Heaters...



Give you more tubing in smaller shell

- easier to install
- more efficient
- low cost

More compact . . . more efficient . . . these General All-Copper Tankless Heaters have been engineered to take *full* advantage of the space within the heater shell. They contain as much, or more, tubing as "bulkier" heaters of equal capacity.

General's Unique "Whirlpool Spiral" Design

Continuous copper tubing within the shell spirals in and out . . . is evenly distributed, provides better tube spacing, free boiler circulation, more uniform heat transfer, and permits using more tubing in the same volume.

You Save Time and Labor

One man can easily make the entire installation. You save time and back-breaking labor . . . your customers get piping hot water at low cost. And these General All-Coppers are attractive . . . blend with modern surroundings. Check all the advanced features of these high quality Heaters . . . sizes for every home, apartments, hotels, country clubs. Write for new illustrated folder.

General Fittings Co.,
125 Georgia Ave., Providence 5, R. I.

GF

GENERAL FITTINGS COMPANY

TANKLESS AND INDIRECT WATER HEATERS AND HEATING SPECIALTIES

Y.M.C.A., Y Boulevard; May 11-13, Springfield, Ill., Elks Club; and May 18-20, Chicago, Ill., Illinois Institute of Technology, 3300 Federal St.

Other courses are May 25-27, Grand Rapids, Mich.; June 8-10, Hartford, Conn.; June 15-17, Rochester, N. Y.; June 22-24, Pittsfield, Mass.; and June 29-July 1, Boston, Mass.

By the end of June there will have been 169 schools in 94 cities. The first school was held in Springfield, Mass., in April, 1950. Tuition for the I-B-R School is $28. Further information may be obtained from the Institute of Boiler and Radiator Manufacturers, 60 East 42nd St., New York 17.

School Superintendent praises API's youth education Program

ENDORSEMENT of the American Petroleum Institute's school program was given by Dr. Kenneth E. Oberholtzer, Superintendent of public schools in Denver, Colo., at a two-day conference of the Oil Industry Information Committeemen in Chicago last month.

Dr. Oberholtzer based his remarks on opinions he had received from other educators who agreed that API school materials were well designed, and that visual materials were outstanding. He urged the group to develop the program in new ways.

The program will be expanded this year to reach 3,000 junior and senior high schools, and Dr. Oberholtzer urged local OIIC members to adapt the program to local conditions.

New England OHI plans Oil Heat Day, April 21 in Boston

OIL HEAT DAY has been planned for April 21 in Boston by the New England Oil Heat Institute. The day-long program is scheduled to begin with the annual meeting at 11 a.m.

The Industry lunch will be at 12:30 and a cocktail hour will precede the Biennial Banquet at the Statler Hotel. The group is advertising April 21 as the most important day of the year for people in the industry.

Among the luncheon speakers are M. E. Spaght, Shell Oil Co.; A. L. Scaife, General Electric Co.; and Robert Gray, FUELOIL & OIL HEAT.

The Lieutenant Governor of Massachusetts, Sumner G. Whittier, and Wendell B. Barnes, Administrator, Small Business Administration, Washington, D. C., will be the banquet speakers.

Greater Philadelphia Fuel Conference meets April 7

THE THIRD annual convention of the Greater Philadelphia Fuel Conference met in Philadelphia April 7 with a full day of meetings. Morning discussions were primarily for the benefit of coal dealers while the afternoon sessions were devoted to fueloil problems.

Among the speakers who discussed fueloil were: W. S. Shockley, Atlantic Refining Co., who spoke on "Is There a New Marketing Concept for Fueloil?" Roderick Stephens, public relations counselor, discussed "The Inroads of Natural Gas, and Something to do about It." John M. Sibarium, Bost Machine Tool Co., had as his subject, "Poor Service is Big Business."

Cameron Ralston, Public Relations Management Corp., gave a speech with applications to both coal and oil.

Eddie Service says:
SAVE YOURSELF NEEDLESS CALLBACKS— PUT EDDINGTON FILTERS ON THE OIL LINES. THEY LAST LONGER BECAUSE THEY FILTER LONGER!
●Greater filtering area; longer filtering life.
●Greater sump capacity.
●Sturdily constructed; yet light in weight.
●Interchangeable with other makes.
●Price sheets and detailed information on request.
EDCO FILTER
EDDINGTON METAL SPECIALTY CO.
Eddington, Pa.
STRAINERS • SPRAY NOZZLES • VALVES • FILTERS • AIR CONES • STABILIZERS • INSPECTION MIRRORS • COMBUSTION HEADS

the business end of this burner really means business

And the real business end of this U. S. Oil Burner is HTCH . . . the High Temperature Combustion Head . . . one of the many reasons why U. S. dealers' sales are booming. With the highest efficiency ever engineered into a burner . . . precision-manufacture . . . convenient service features . . . plus up to 36% fuel savings provided by HTCH and Vernier-Flame Control . . . Delayed Oil Valve . . . Instantaneous Fuel Cut Off . . . it's no wonder U. S. Oil Burners have been established as overwhelming favorites wherever they are sold. There's a complete line of quality-made U. S. Oil Burners—ranging in capacities from 0.50 to 20.00 G.P.H.—for homes, apartments, garages and many other commercial installations. For faster, easier sales and nice profits—install U. S. Oil Burners.

CONTACT YOUR HEATING WHOLESALER OR WRITE US FOR THE FACTS TODAY.

THEY OUTSELL BECAUSE THEY EXCEL

U. S. BURNER DIVISION THE CARLIN COMPANY WETHERSFIELD, CONNECTICUT

8 MODELS

from 0.50 to 20.00 G.P.H. Shown here are five larger capacity models.

Model 600 S-4
3.00 to 6.00 G.P.H

Model 800 S-4
4.00 to 8.00 G.P.H.

Model 2000 S-5
7.00 to 12.00 G.P.H.

Model 1200
6.00 to 12.00 G.P.H.

Model 2000
10.00 to 20.00 G.P.H.

Manufacturers' Activities

23 new Wholesalers will carry, service G-E heating Controls

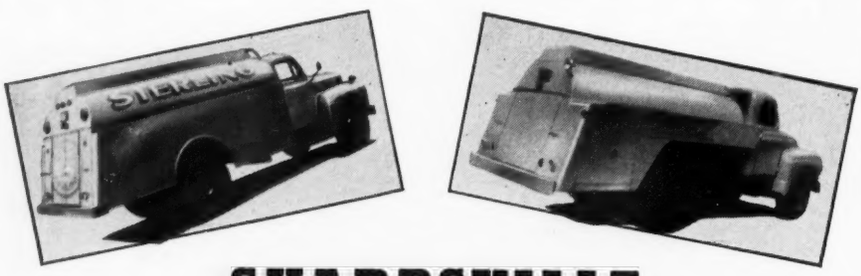
GENERAL ELECTRIC'S Appliance Control Department has added 23 heating equipment wholesalers to its national network of franchised servicing distributors for home heating controls. Besides selling and distributing all items in the G-E oilburner control line, the distributors will act as official servicing and exchange units.

The new distributors, by region, are:

Northeast: West Side Plumbing Supply Co., Newark, N. J.; United Plumbing and Heating Co., Plainfield, N. J.; H. Molauer Co., Waterbury, Conn.; A. R. Webber Co., New Haven, Conn.; Rochester Oil Burner Co., Rochester and Buffalo, N. Y.; LeValley-McLeod, Schenectady, N. Y.; R & O Supply Co., Portland, Maine; Gray Supply Co., Springfield, Mass.; E. L. Kimball Co., Malden, Mass.; and Cronin Supply Co., Cambridge, Mass.

Atlantic: T. F. Campbell Co., Pittsburgh, Pa.; Refrigeration Supply Co., Richmond, Va.; Greenburg Supply Co., Wilmington, Del.; Fuel Savers, Inc.; Harrisburg, Pa.; Lincoln Supply Co., Trenton, N. J.; R. E. Michel Co., Inc., Baltimore, Md.

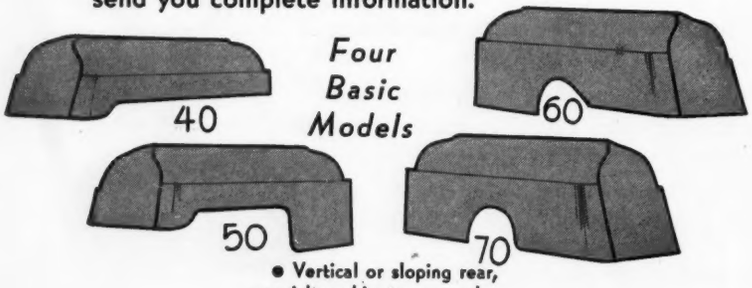
Midwest: Columbus Automatic Sprayer Co., Columbus, Ohio; Ohio Pump Service Co., Cleveland, Ohio; F. E. Winstel Co., Cincinnati, Ohio; Marine Electric Co., Louisville, Ky.; Swanson-Nunn Electric Co., Evansville, Ind.; Robert Barclay Co., Chicago, Ill.; Place Brothers, Chicago, Ill.; and Oil Heat Parts Co., Rockford, Ill.



SHARPSVILLE TRUCK TANKS

built to your needs

Every Sharpsville Truck Tank, standard or custom-built, has the same quality features. Four basic designs are available, each with distinct advantages in appearance and utility. One of these can be built and equipped to suit your requirements. Tell us what you want. We'll send you complete information.



• Vertical or sloping rear, specialty cabinets, can racks, piping, pump systems, all to your requirements.

SHARPSVILLE STEEL FABRICATORS, Inc.

Sharpsville, Pa.

Established 1860 Incorporated 1907

BUILDERS OF TRUCK TANKS, STORAGE TANKS, PRESSURE VESSELS AND AUTOMOTIVE FIRE APPARATUS

Stackpole keynotes Unarcos' Chicago Sales Convention

THE FIRST sales convention of the new heating and cooling division of Union Asbestos and Rubber Co., Chicago, was held at the Conrad Hilton Hotel in Chicago on February 25 and 26 with 100 sales representatives from the United States and Canada in attendance. The dinner meeting was addressed by Chester S. Stackpole, general sales manager for the new division, who painted a bright picture for the future.

In addition to a complete line of products from Unarco's new division, the salesmen were given the details on the Company's patented turbilizer in the steel tubing on its convector radiator, a new type design in Unarco's unit heater line, the features offered on its florvectors and airconditioning units.

Before the formal sales meeting, the group was taken on a tour of the company's Blue Island and Firecraft plants.

Cleveland Steel Products moves Offices to new Plant

THE CLEVELAND Steel Products Corp. has announced that its general offices and manufacturing facilities have been moved to a new plant at 16025 Brookpark Rd., Cleveland 11, Ohio. The former address was 7306 Madison Ave., Cleveland.

There's a

SKUTTLE HUMIDIFIER

for **ANY** kind of heat

If you handle the Skuttle line, you don't have to pass up the profit of humidifier sales in **any** home. The Skuttle line is complete. There's a Skuttle Humidifier for any type heat—Winter Air Conditioning—Gravity Warm Air—Counterflow—Low Highboy—Highboy—Floor Furnace—Space Heater . . . Steam, Hot Water or Vapor.

See the complete line below. Each is an efficient, durable, satisfactory unit that you can recommend with confidence.

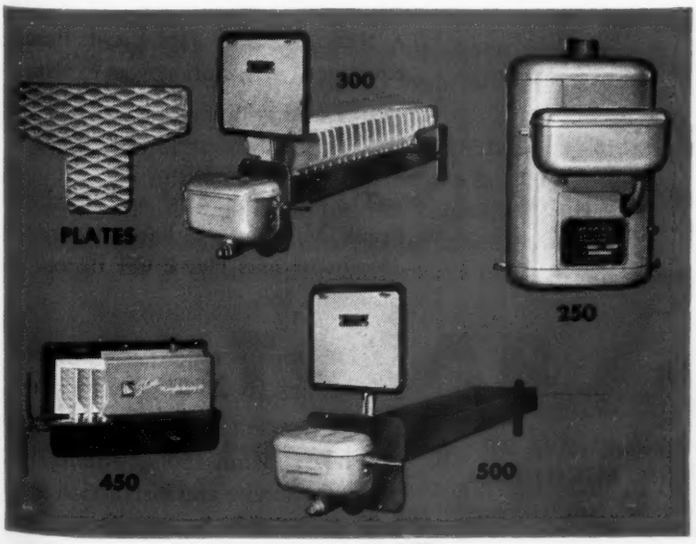
See Us At Booth 156
O.H.I. Show, Philadelphia

Sell HUMIDITY to ALL HOMES with SKUTTLE!

Skuttle
MANUFACTURING COMPANY
MILFORD, MICHIGAN

Skuttle Series 600

The most popular humidifier for many years. For all standard type automatic fired warm air furnaces, including gravity and winter air conditioning. Easily installed. Self-flushing—self-cleaning. Patented Vapoglas plates for efficient evaporation. Blown glass float—can't leak. Chrome and nickel plated valve parts—aluminum plate rack to eliminate electronic corrosion. Double coated acid and alkali resisting porcelain enamel pan and float chamber.



Skuttle Model 450

For warm air furnaces where space doesn't permit a Series 600. Model 450 can be used if there is 3" space between furnace and casing—counterflow—floor and other furnaces and space heaters.

Skuttle Model 250—Gas Fired

Independently gas fired for steam, hot water and perimeter heated homes.

Skuttle Series 300 for Large Homes

Holds up to 35 Vapoglas plates—for large homes.

Skuttle Series 500 for Coal Fired Warm Air Heat

Needs no plates—for use in high temperature plenums.

Patented Vapoglas Evaporating Plates

Pure glass wool compressed under heat. The most efficient plate you can get. All evaporating plates should be replaced when clogged with water chemicals—about once a year.

International Heater has dealer-distributor Meetings

A SERIES of Distributor-Dealer Conferences take place at the main plant of the International Heater Co., Utica, N. Y. March 15 through April 21.

The meetings will acquaint the dealers with engineering features and a working knowledge of the line of heating equipment. The company plans to cover all phases of sales and service problems.

International recently appointed two representatives: J. W. Calhoon, Des Moines, Ia., for Iowa, Nebraska and Kansas; and L. G. Lininger, Erie, Pa., for Western New York and Northwestern Pennsylvania.

Hall-Neal holds Convention in Indianapolis for Dealers

THE 1954 Dealers' Convention of the Hall-Neal Furnace Company was held Feb. 23 and 24 at the Marott Hotel in Indianapolis, Indiana.

Among the features of the convention was the display of the new WO Series Victor oil burning furnace, a convertible unit, and the new Halco low-boy.

Principal speakers included Fred S. Boone, president of the Company, Prof. S. Konzo, University of Illinois, along with Ray Boyd and Tom Williams, assistant sales managers.

Coleman sets up Scholarships at two Midwestern Colleges

COLEMAN CO., Wichita, Kan., has inaugurated a new scholarship program, aimed at helping fill the industry's need for more engineering talent.

The program, which calls for two $300 scholarships annuallly, awards one each year for an outstanding senior engineering student at Kansas University and another at Kansas State College. Winners of the first awards, who were selected by a faculty scholarship committee at each institution in cooperation with Coleman personnel officials, are Daniel F. Swarts, Aliquippa, Pa., at Kansas University, and Raleigh T. Weaver, Salina, Kan., at Kansas State.

Air Conditioning Engineering Co. adds to sales Department

THE SALES engineering staff of Air Conditioning Co., Cambridge, Mass., has been increased by Walter J. Fallon, Joseph H. Higgins, James Morong and L. L. Frost.

They will call on dealers in the New England area. The home office organization is headed by H. C. Hartford.

Cleaver-Brooks has meeting for burner Dealers in Brooklyn

A NEW TYPE of Hev-E-Oil Burner equipment distribution was explained at a luncheon and meeting of Cleaver-Brooks Hev-E-Oil Burner dealers of Brooklyn on March 6.

The meeting was sponsored by Frank M. Wymbs, Eastern regional distributor and Hev-E-Oil Burner of Brooklyn, Inc.

M-H names service, installation Engineers to 23 Branch Offices

THE MINNEAPOLIS-HONEYWELL Regulator Co., Minneapolis, Minn., has named 27 service and installation engineers to 23 of its branch offices in the

50 years in the making

BLACKMER'S "*Gold Seal*" TRUCK PUMP

Long life and economical operation is assured **BLACKMER'S** customers with a new design which represents 50 years of experience in building the famous Rotary Pumps which are,

"SELF-ADJUSTING FOR WEAR"

The new design incorporates all of the time tested **BLACKMER** features plus:

The BLACKMER CARTRIDGE-TYPE Mechanical Shaft Seal.

Heavy Duty Anti-friction Bearings completely protected from the pumpage.

Available in two sizes, 2½" and 3", rated at 100 GPM and 200 GPM respectively. "Listed by Underwriters' Laboratories, Inc."

Write for complete details.

liquid materials handling

BLACKMER

INDUSTRIAL HAND AND TRUCK PUMPS, STRAINERS, PRESSURE CONTROL VALVES

BLACKMER PUMP COMPANY, GRAND RAPIDS 9, MICHIGAN

DIVISION SALES OFFICES

NEW YORK • ATLANTA • CHICAGO • GRAND RAPIDS • DALLAS • WASHINGTON • SAN FRANCISCO

See Yellow pages for your local sales representative

AUTOCAR TRUCKS ARE GOOD FOR YEARS AND YEARS

By replacing an inexpensive bushing, this Autocar owner prolongs indefinitely the life of a much more expensive spring bracket assembly.

An average of 128 renewable bushings are used throughout the Autocar chassis.

Their use permits Autocar to confine wear to inexpensive, easily replaced bushings instead of larger, more costly parts.

Bushings permit the use of different materials to meet different conditions. Connecting rods, brackets, levers, etc., employ bushings of soft metal to prevent scoring more expensive mating parts. Where limited motion or shock resistance is a primary consideration, invariably bushings of hardened steels are specified.

No other truck at any price can show as complete an application of bushings as Autocar.

They are one of the hidden values that permit Autocars to deliver top performance year after year and at minimum maintenance cost.

For more information on Autocars fill in and mail this coupon.

Autocar Division of The White Motor Company
Ardmore, Pa.

Please send me full information concerning Autocar's quality features.

Name_____

Firm Name_____

Address_____

Type of operation_____

No. of trucks in fleet_____

90

AUTOCAR TRUCKS

Autocar Division of The White Motor Company • Ardmore, Pa.

Export: Drexel Building, Philadelphia 6, Pa., U.S.A.

Autocar Trucks are sold and serviced throughout the world

fueloil & oilheat

United States and Canada. The assignments as specialists were made upon completion of an intensive training course March 12 at the company's home office in Minneapolis.

The graduates and their new assignments include: Eugene F. Edelmann and Milton Steiner, St. Louis; Ronald E. Bulletset and Fred I. Smith, Seattle; James W. Miller and James C. Naugle, Houston; Paul D. Beck and Gerald L. Hopkins, Portland.

Also, Douglas Aden, Chicago; Noris S. Bernard, Toledo; Charles D. Binkley, South Bend; Charles E. Bradley, Jr., Pittsburgh; Weldon B. Dorris, Los Angeles; David T. Hartupee, San Francisco; Robert W. Jones, Wichita; James A. Kirby, Richmond; Burton L. Larrabee, Minneapolis; William E. Lemon, Des Moines; Menzies McKillop, Spokane; William E. Pierrard, Dallas; Jack R. Reimers, Union N. J.; Warren Rosseau, Birmingham; Charles B. Simison, Indianapolis; Albin J. Visnauskis, Boston; Donald E. Yerks, Detroit; Paul B'eliveau, Montreal, and Clifford L. Thompson, Toronto.

Minneapolis-Honeywell also announced the opening of a new building at 885 Wethersfield Ave., Hartford, Conn. The new office, which replaces the former office at 35 Webster St., Hartford, Conn., will serve as the headuarters for the firm's commercial, heating, and industrial sales and service in all of Connecticut (except Fairfield County), Western Massachusetts and Southern Vermont.

Hooven

Grant

G-E reorganizes Marketing for airconditioning Products

TWO MARKETING regions have been added to the four-region national marketing organization of General Electric's Air Conditioning Division, Bloomfield, N. J.

The two new regions will have headquarters in Atlanta, Ga., and Cleveland, O. The reorganized setup and the managers are as follows: Region I, H. N. McMenimen, New York; Region II, W. H. Grant, Cleveland; Region III, L. M. Larkin, Chicago; Region IV, P. M. Hooven, Atlanta; Region V, E. J. Guillory, New Orleans; Region VI, W. D. Paulson, San Francisco.

Present field sales and administrative people will, for the most part, remain in place and personnel will be added to man positions newly created.

Strickler to direct Sales, Promotion for Lennox Furnace

R. D. STRICKLER has been appointed director of sales for all Lennox furnace plants and Norris Industries through the United States and Canada. He will coordinate the activities of advertising and merchandising throughout the entire organization from the home offices in Columbus.

SAVE TIME—MONEY 5 WAYS

with Steinen Draft Regulators

- Scaled for FAST—EASY—ACCURATE draft setting.
- True balance at all draft settings— Front and rear weights move at same time
- Less bearing surface Non-clog, non-bind bearings
- Exclusive leveling feature
- Two models fit 90% of all requirements.

Contact your jobber or write us for additional information.

OTHER STEINEN PRODUCTS:
OIL BURNER NOZZLES
INSPECTION MIRRORS
NOZZLE KITS
ADAPTERS

2588

ESTABLISHED 1907 STEINEN TRADE MARK

WM. STEINEN MFG. CO. 43 Bruen St., Newark 5, N. J.

MANUFACTURERS OF ACCESSORIES FOR OIL HEATING AND AIR CONDITIONING

"Adjust the carburetor with the motor OFF? NO!"

"Why Do It With An Oil Burner?"

See How Combustioneer® permits OIL and AIR ADJUSTMENTS while the burner is operating!

MODEL dLP

Available Now!

New Low Pressure TWO STAGE FUEL UNIT WITH SELF PURGING RESERVOIR!

You wouldn't let a mechanic adjust the Carburetor on your car with the motor off, so why would you even consider adjusting an oil burner while it is off . . . and you must with *ordinary* oil burners . . . but not **Combustioneer.**

Combustioneer . . . IS BETTER

Combustioneer is the amazing Low Pressure Oil Burner on which secondary air and oil capacity adjustments can be made *while the burner is running!* A simple screw adjustment permits *any exact* fuel capacity selection between **.50** and **3.00** g.p.h.

AGAIN it's Combustioneer

The new **Combustioneer** dLP Oil Burner has a TWO STAGE Fuel Unit with a *Self Purging Reservoir.* For inside or outside tank installations . . . draws up to **38** ft. horizontally plus up to **15** ft. vertically.

Combustioneer FEATURES

- Adjusts oil and air while burner is running
- Two Stage "Hydra-Vated" fuel unit
- Self purging reservoir
- Oil lift up to **15** feet vertical plus **38** feet horizontal
- Oil capacity range **.50** to **3.00** g.p.h.
- No extra lift pumps required
- "Free Floating" piston
- Positive start and shut-off valve

Write for Combustioneer Franchise Details

Clip and Mail Today!

Combustioneer DIVISION
The Steel Products Engineering Company
1347 W. Columbia Street, Springfield, Ohio

Please send me, without obligation, all details about the new **Combustioneer** Low Pressure Two-Stage Fuel Unit . . . and about a **Combustioneer** Dealer Franchise.

NAME _____

FIRM NAME _____

STREET ADDRESS _____

CITY _____ ZONE ____ STATE _____

Combustioneer | High and Low Pressure Oil Burners • Gas Burners • Stokers • Humidifiers

Division—The Steel Products Engineering Company, Springfield, Ohio

fueloil & oilheat

C. B. Lytton will succeed Strickler as sales manager of Lennox-Columbus; and F. T. Locey has been promoted to division manager. Allen Georgenson will take over as assistant sales manager of Lennox-Columbus.

Marlow Pumps opens branch manufacturing Plant in Texas

MARLOW PUMPS, division of Bell & Gossett Co., Ridgewood, N. J., opened a manufacturing plant at Longview, Texas, 125 miles east of Dallas.

The company's plant in De Queen, Ark., will be closed. Company officials believe that the move will improve shipping facilities of their products because Longview is served by major railroads, airlines, and main trunk highways.

Truck posters are available to industry Groups, Firms

TRUCK POSTERS that tell the oil heat story are available to industry groups or individual firms from Color Reproductions, 122-128 N. 11th St., Newark 7, N. J.

Posters are 28 x 44" on waterproof cardboard and are printed in two colors. Slogans are changed monthly and present a unified industry advertising campaign.

First to use trucks as billboards has been the Union County (N. J.) Oil Heat Association whose president Robert Crane recommends the campaign highly.

Eureka Williams' Sales lead '53 January, February Figures

JANUARY and February sales of Williams Heating Division (Eureka Williams Co., Bloomington, Ill.) dealers are running 60% ahead of the same months last year, according to C. G. Branch, manager of the Division.

Branch credits the jump in volume to intensified sales activities of the individual dealers.

Carson and Demarest manage Sales for Fluid Heat Div.

AN ITEM in our March issue incorrectly reported the retirement of Grey Knowles, general sales manager, Fluid Heat Div., Anchor Post Products Co., Baltimore, and the succession of T. E. Carson to the post.

Actually, management of sales is now shared by T. E. Carson and R. T. Demarest. Carson, formerly assistant sales manager of the Eastern Division, Fluid Heat, has been promoted to sales manager of the Eastern Div. Demarest, formerly assistant sales manager, of the Western Division, Fluid Heat, has advanced to sales manager of the Western Div. Carson will headquarter in Baltimore; Demarest will headquarter in Red Oak, Ia.

Knowles has been given a new position and is handling special accounts and assignments, working out of Baltimore headquarters.

Sales Executives elected to Bell & Gossett Board

TWO NEW directors, increasing the board from five to seven members, were elected to the Board of Directors of the Bell & Gossett Co., Morton Grove, Ill., at the annual meeting.

Both executives in the company's sales departments, the new directors are A. S. Marlow, Jr. and W. A. Boone. Marlow was also elected a vice president of the company.

UP TO 58½% lighter

THAN COMPARABLE COUPLINGS!

New Flexiflange Flexible Couplings — Specially Designed for Tank-Truck Use

Because the emphasis over the past few years has been on *faster unloading*, truck and trailer truck operators have been moving to large size piping. There has been one important drawback, however, to this trend. Leakproof, flexible couplings to fit the larger pipe have always been available—but they are designed primarily for use in bulk plants and refineries. This means they are much heavier than need be.

Now Philadelphia Valve Co. has solved the problem with its new line of Flexiflange Flexible Couplings. Made of malleable iron, they are engineered specifically for use in truck and trailer tanks. They're designed for 100 psi with a liberal safety factor—far stronger than necessary for tank-truck service—yet in most cases they offer a weight saving of up to 58½ percent!

Flexiflange Couplings fit into the same grooves as any standard couplings. The seals, too, are interchangeable with other standard makes. They are available in all sizes from 1" to 6". Pipe sleeve adapters can also be furnished.

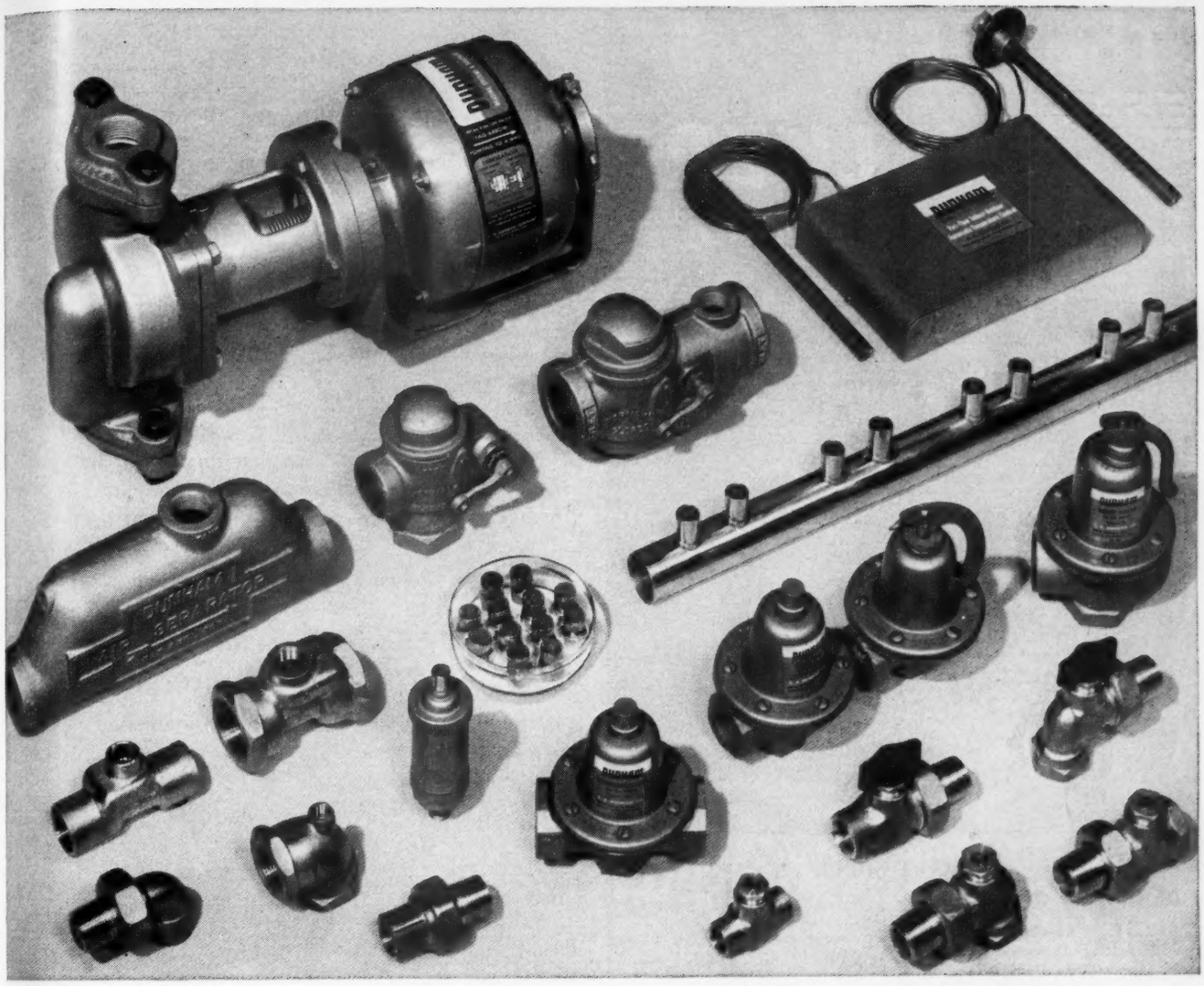
To get peak efficiency with up to 58½ percent saving in weight, be sure to specify Flexiflange Couplings by Philadelphia Valve. Write for complete information and prices.

PHILADELPHIA VALVE COMPANY

3413 Aramingo Avenue, Philadelphia 34, Pa.

Pacific Coast Distributors:

Oil Marketing Equipment Co., 325 Fremont Street, San Francisco 5, Calif. • Howard Supply Co., 5125 Santa Fe Avenue, Los Angeles 11, Calif.

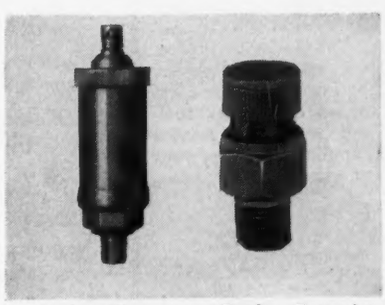


CAN YOU TELL AT A GLANCE WHAT'S MISSING FROM THIS PHOTO?

You're looking at the industry's *newest, most complete* line of hot water heating equipment. Only thing missing from this broad Dunham line—*the boiler.* You can get everything else you need ... including radiation ... on one order to Dunham. And every item shown has special design features.

Dunham Expansion Type Air Vents, for example, assure automatic venting—never need adjustment. Can be manually opened for rapid air removal when system is first filled. Discs easily replaced without draining the system.

Dunham Float Type Vents feature a built-in siphon that eliminates waterlogging. Quickly disassembled for routine cleaning and servicing. All parts heavy brass. No extra fittings needed.



Dunham Float Type Vent. Working pressure: 35 p.s.i.

Dunham Expansion Type Vent. Working pressure: 50 p.s.i.

For full information, clip and mail the coupon.

DUNHAM HOT WATER HEATING

RADIATION • UNIT HEATERS • PUMPS • SPECIALTIES

QUALITY FIRST FOR FIFTY-ONE YEARS

C. A. DUNHAM COMPANY • CHICAGO • TORONTO • LONDON

Fueloil & oilheat

C. A. Dunham Company
Dept. FOH-4, 400 W. Madison St.
Chicago 6, Illinois
Send complete Hot Water Line Literature
Name_____
Firm_____
Address_____
City_____ Zone____ State_____

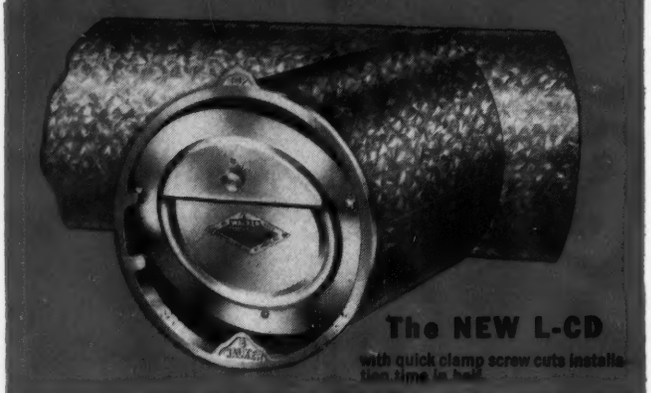
The NEW 1954

WALKER *Automatic*

DRAFT REGULATORS

This New 9-Star Performer

SPEEDS REPLACEMENTS and NEW INSTALLATIONS



Here is Draft Control as perfect as possible

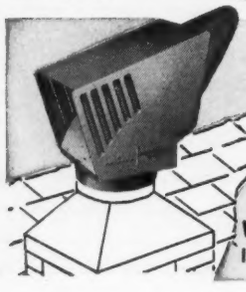
And Walker now offers its L-CD with a longer collar. This feature keeps the damper out of the gas stream for better performance. Now the assembly of collar and control saves time on the job. And you can see for yourself how it enhances Walker sales appeal.

With new 1954 models, Walker, as always, offers a complete range of sizes of automatic draft controls. There is a Walker Fuel-Saver for every conventional heating use. More than 13 million sales bespeak foolproof and long-lived service with all applications. See your jobber or write us.

The First handbook for industrial installations is published by Walker! Full of "how-to" and "where-to" information—with plenty of tips for profit. Send for your FREE copy today!

Check These 9 POINTS

1. EASE OF ADJUSTMENT with exclusive patented pointer and calibrated dial.
2. BOX TYPE HINGES with sealed protection against corrosion, dirt and dust.
3. BALANCE PLATE — scientifically designed to maintain proper balance.
4. SPECIFIC PIPE SIZES—insure correct capacity for every type of installation.
5. ALUMINUM FRAME — rigid, long lasting.
6. EASE OF INSTALLATION—collar and stub for quick attachment.
7. ALUMINIZED STEEL—for heat and corrosion resistance.
8. FACTORY SET—for "performance as perfect as possible."
9. FREE FLOW of air in unrestricted inside area.



WALKER
VENTURI-TOP CHIMNEY CAP

Recommended as ideal for both heating and ventilating applications. Just the device to solve problems of down draft and poor draft. Economical... easy to install... attractive in appearance. Available immediately in sizes from 3" to 8"

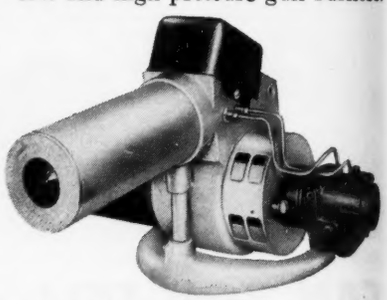
WALKER MANUFACTURING & SALES CORP.
1750 Penn Street St. Joseph, Mo.

New Products

Each New Products item has an identifying number. If you want more information on any equipment described here send the coupon on page 148 to FUELOIL & OIL HEAT, *2 West 45th St., New York 36, N. Y. and identify the product by circling its number on the coupon.*

"Economy Twins" are low-pressure and high-pressure gun Burners

HY-LO BURNER CO. has expanded its line with the addition of "Economy Twins," low and high pressure gun burners. Designed primarily for brand name sales to boiler and furnace manufacturers, the burners also are offered to dealers. Either type can be furnished with flange or pedestal mountings.



Model LO-O, illustrated, has a capacity range from 0.4 to 1.5 gph and uses the Sundstrand low pressure fuel unit. Available with fixed or adjustable metering.

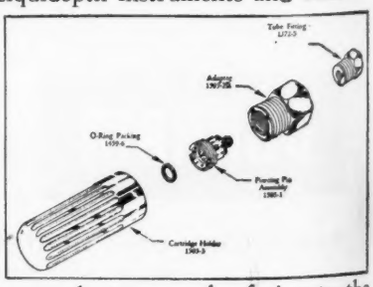
Model HY-O is the high pressure burner, capacity range from 0.6 to 2.5 gph. Design and development have concentrated on reducing pulsation complaints and simplifying servicing.

Made by: Hy-Lo Burner Co., Inc., Eddington, Pa.

Circle E1 on coupon, page 148

Liquidepth blowout Gun clears plugged gauge transmission Lines

LIQUIDEPTH blowout gun was designed primarily to clear transmission lines of Liquidepth instruments and controls if they become partially restricted with heavy oils or oil sediments. The device consists of a holder for a carbon dioxide cartridge, which is connected by an adapter or tube fitting to the



LOOK IN HERE

You are looking directly into one of the largest, best placed, most convenient wiring compartments you have ever seen in an ignition transformer*

Here's extra room, better design,—the kind of convenience you've wanted.

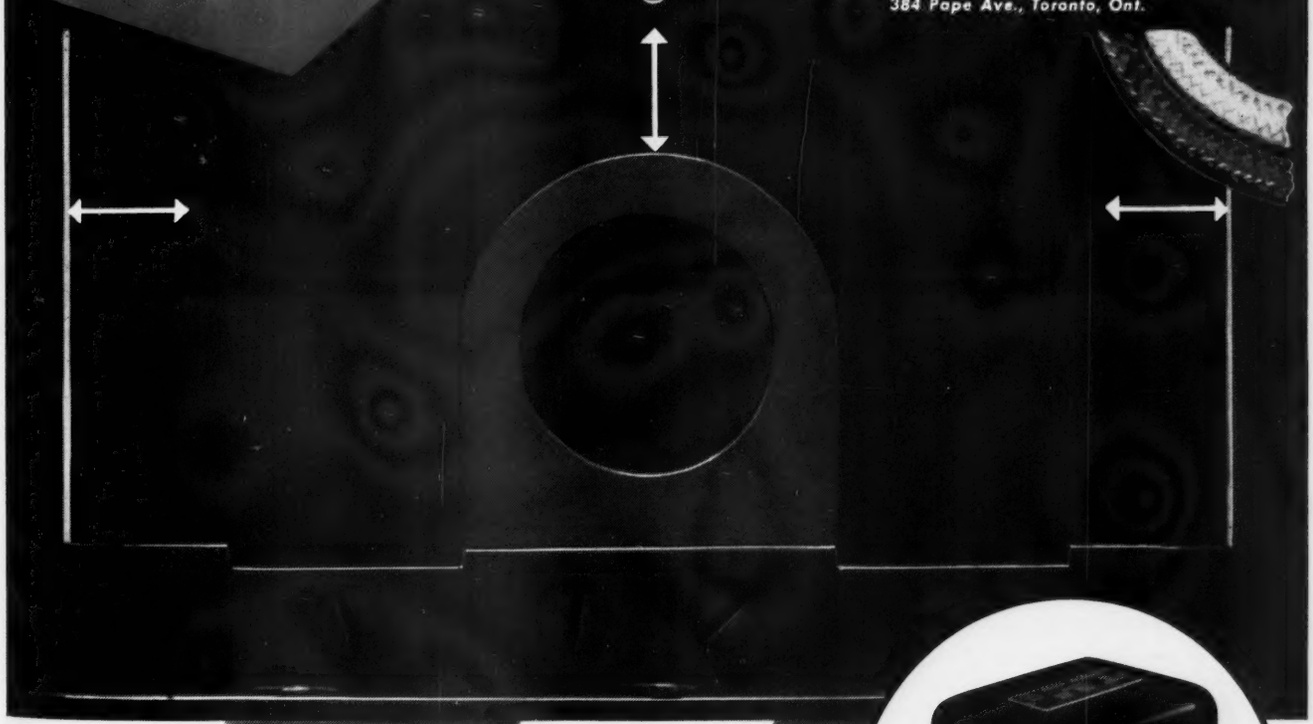
Jefferson's new wiring compartment extends all the way across and well into the rounded corners of the case. You'll find lots of finger room for installing connectors on either side.

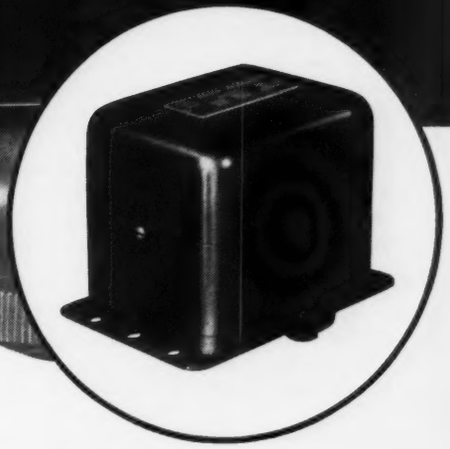
And see the connector ear in front. Plenty of space between ear and edge of compartment for easy replacement of as many as seven separate leads!

Now slip on the self-aligning design cover — the single lock-type screw securely fastens cover in place. "Neat job," you'll say. "Plenty easy and fast, too. Best transformer I've ever used!"

Try Jefferson Transformers and see! Bulletin showing all the models on request.

JEFFERSON ELECTRIC COMPANY
Bellwood, Illinois
In Canada: *Canadian Jefferson Electric Co., Ltd., 384 Pape Ave., Toronto, Ont.*





*Applies to 638-231 Series case design.

JEFFERSON ELECTRIC

Jefferson Transformers

Years ahead!
Compact "package" lets you install tomorrow's comfort today

Mueller Climatrol
NEW COMPANION UNITS
BRING YOU ADDED BUSINESS NOW – ON YEAR-AROUND HEATING AND COOLING

Once again, Mueller Climatrol has responded to your needs. The new companion winter-heating and summer-cooling units permit you to sell the *right size* in both heating and cooling units, irrespective of climates.

The heating unit shown at left above is available in four sizes — 80,000, 100,000, 120,000 and 150,000 Btu input. The type 906 cooling unit, at right above, is available in 2-hp and 3-hp sizes. Each size of the heating unit may be interchanged with either of the cooling models — thus giving you real flexibility.

You can offer prospects the last word in comfort with new Mueller Climatrol engineering — new efficiency . . . new, attractive styling . . . new, handsome Mountain Spring Green finish.

You can talk cleaner living . . . better health . . . more convenience . . . less depreciation . . . greater comfort.

Send coupon for further information on why you can count on Mueller Climatrol companion units to turn more prospects into buyers.

MUELLER CLIMATROL,
2050-D W. Oklahoma Ave., Milwaukee 15, Wisconsin
Send me further information on the new Mueller Climatrol companion units..

Name.....
Address.....
City.....(.....) State..... D-158

97th Mueller Climatrol

plugged line and the cartridge pierced with a pin. The force of the escaping carbon dioxide gas is used to clear the line.

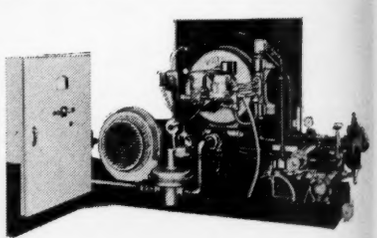
The blowout gun comes with a ¼" pipe x ¼" O.D. tube compression fitting. Compression type fittings in other sizes also are available. The gun is intended for blowing out lines capable of withstanding 100 lbs. psi and vented beyond the restricted point to the atmosphere either directly or through a fluid.

Made by: Liqudepth Indicators, Inc., 43-22 Tenth St., Long Island City 1, N. Y.

Check E2 on coupon, page 148

Petro packaged Burners for commercial-industrial Uses

A NEW SERIES of Petro packaged oilburners, gasburners and combination gas-oilburners includes seven stock sizes. Each unit is assembled, wired piped and tested; components are integrally mounted on a heavy structural steel base.



Oilburners range in capacity from 25 to 145 gph; gasburners from 3,750,000 to 24,000,000 Btu input. Each is equipped with enclosed electrical control panel and forced draft fan. Combination gas-oil models permit quick fuel changeover. Oilburners are available for all grades of fuel-oil, with factory-installed electric, steam or hot water oil heaters.

Made by: Petro, 3170 West 106th St., Cleveland 11, Ohio.

Check E3 on coupon, page 148

Wayne low pressure Burner has Dial-O-Meter to set firing Rate

MODEL EL Wayne low-pressure oilburner, with a range from 0.4 to 1.5 gph, is equipped with Dial-O-Meter to enable the installer to set the desired firing rate. A calibrated dial equipped with cover and locknut provides a visible means of setting the fuel unit's oil and air capacity while firing the burner. Secondary air adjustment is accomplished with a screwdriver.

Model EL is described as costing only a little more than the conventional high pressure Model E.

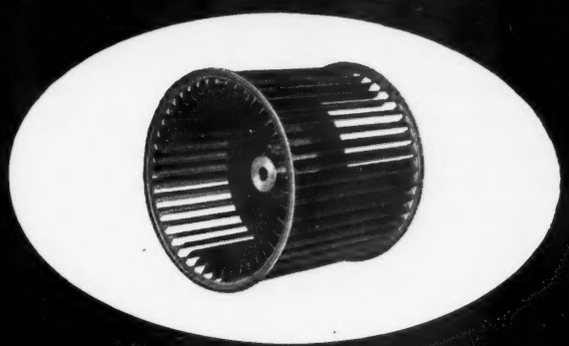
Made by: Wayne Home Equipment Co., 801 Glasgow Ave., Fort Wayne 4, Ind.

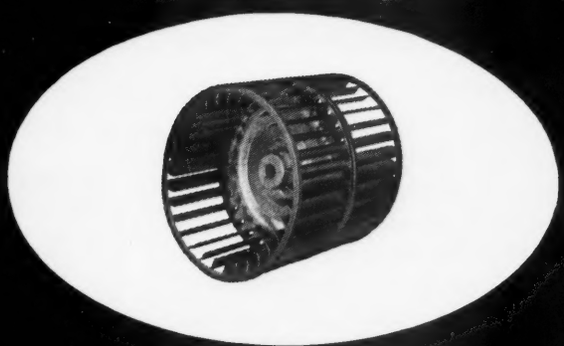
Check E4 on coupon, page 148

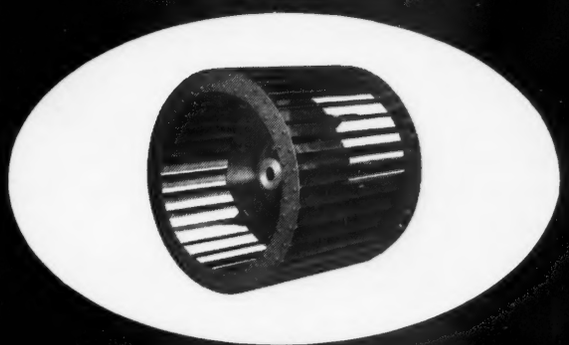
Airtemp room cooler for casement type Windows

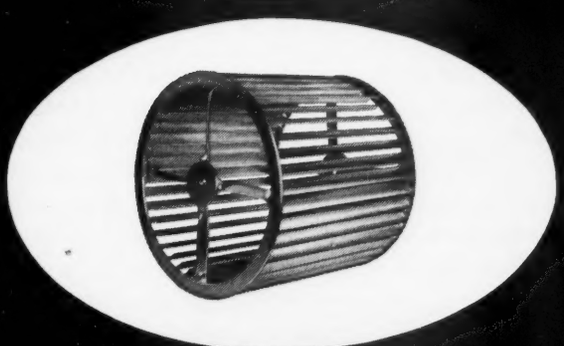
AIRTEMP'S ½ hp window unit, designed for casement windows, is securely bolted to the window frame using the

LAU Specialized Blower Wheels









in a tremendous range of sizes . . . for every need!

You'll find LAU your BEST source of Blower Wheels of every size and type . . . because LAU is specialized for production tooling of highest quality at low cost.

Single Inlet . . . End Suspended . . . Center Suspended . . . Double Inlet . . . forward curve centrifical Blower Wheels with baked aluminum enamel finish. Can also be supplied with Hot-Dip Galvanize or Ruspruf special finishes.

Many sizes available with Power Lock Hubs.

SIZES:

1 3/4" to 30" width
4 1/4" to 30" diameter

BORES:

0 1/4" to 3 1/2"

CAPACITY RANGE

50 to 22,000 cfm
0" to 2" static pressure

Write today for catalog pages 707

THE LAU BLOWER COMPANY · Dayton 7, Ohio

LAU World's Largest Manufacturers of Air Conditioning Blowers

WIN THE COLD WAR

AGAINST SALES RESISTANCE!

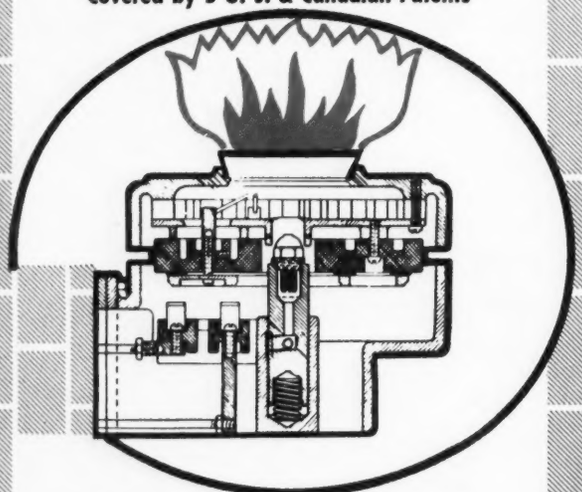
. . . With the newest OIL BURNER discovery in heating history . . . a revolutionary, sensational fuel-saving

DIESEL DYNAFLAME

V.F.T.

OIL BURNER

Covered by 5 U. S. & Canadian Patents



Only the DIESEL DYNAFLAME has these exclusive features:

EASY TO SELL!

- **A CO2 test will convince you of the outstanding high efficiency at lower fuel cost!**
- **Portable live-model demonstrator available**

EASY TO INSTALL!

- **Eliminate combustion chamber, hearth and labor costs**
- **Can be installed in less time than any other make**

EASY TO MAINTAIN!

- **Requires little or no servicing**
- **No assembly to be removed**

DESIGNED FOR USE WITH ALL TYPES OF BOILERS

WANTED **Manufacturer's representatives . . . exclusive territories available. Write for details.**

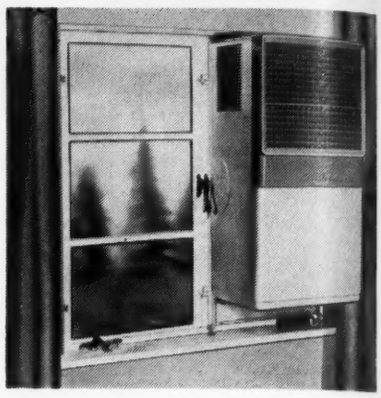
"A Better Deal When You Deal With Diesel"

DIESEL OIL BURNER CORP.

105-20 New York Blvd., Jamaica, N. Y.

Cables: Burnoil, N. Y., U.S.A.

same openings provided for storm windows and screens. Entirely enclosed within the room, the airconditioner fits all standard-size casement sashes.



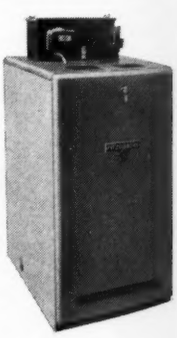
Its cabinet is removable without dismounting, while the molded plastic air discharge grille has movable vanes for directing air flow up or down or to either side. Thermostatic control and two-speed fan are optional.

Made by: Airtemp Div., Chrysler Corp., 1600 Webster Ave., Dayton 1, Ohio.

Check E5 on coupon, page 148

Enclosing Jacket announced for Fitzgibbons No. 770 boiler Unit

AVAILABLE for Fitzgibbons No. 770 oilfired boiler-burner unit is a plant-assembled enclosing jacket, offered as an optional item and made of 20-gauge steel. It comes fully erected and attached to the unit.



This feature carries out the basic advantage of the No. 770 which is the elimination of boiler and burner assembly work on the job. The standard unit includes a flush jacket with all accessories and boiler specialties needed for any type of forced hot water heating system. Included too is Fitzgibbons Tanksaver for continuous domestic hot water.

Made by: Fitzgibbons Boiler Co., 101 Park Ave., New York 17, N. Y.

Check E6 on coupon, page 148

Seifert "Ballet Balance" Control regulates forced-air Furnaces

BALLET BALANCE control arrangement for oilfired forced-air furnaces, described by its inventor as revolutionary and capable of reducing fueloil consumption by one-third, works by preventing room temperatures from becoming higher than the setting of the room thermostat. A two-stage room thermostat having two sets of contacts, each snap-acting through use of a dedent magnet, does the trick. When both sets of contacts are open, the circulating blower cannot run even though the furnace is hot.

Starting with both sets of room thermostat contacts open because the room is warm enough, the oilburner and circulating blower are idle. A drop in room temperature causes one set of thermostat contacts to close. If residual heat in the furnace is causing the switch of a bonnet control to be closed, the forced-air blower starts and the

DELCO MOTORS

the best running mate your product can have

Millions of Delco Motors—fractionals and integrals—are giving reliable service in the operation of farm equipment, home appliances, tools and machinery of every sort.

Such wide usage suggests that Delco Motors give a good account of themselves, performance-wise. Such user acceptance suggests, too, that you would find a Delco Motor the best running mate for *your* product.

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DIVISION OF GENERAL MOTORS CORPORATION
DAYTON 1, OHIO

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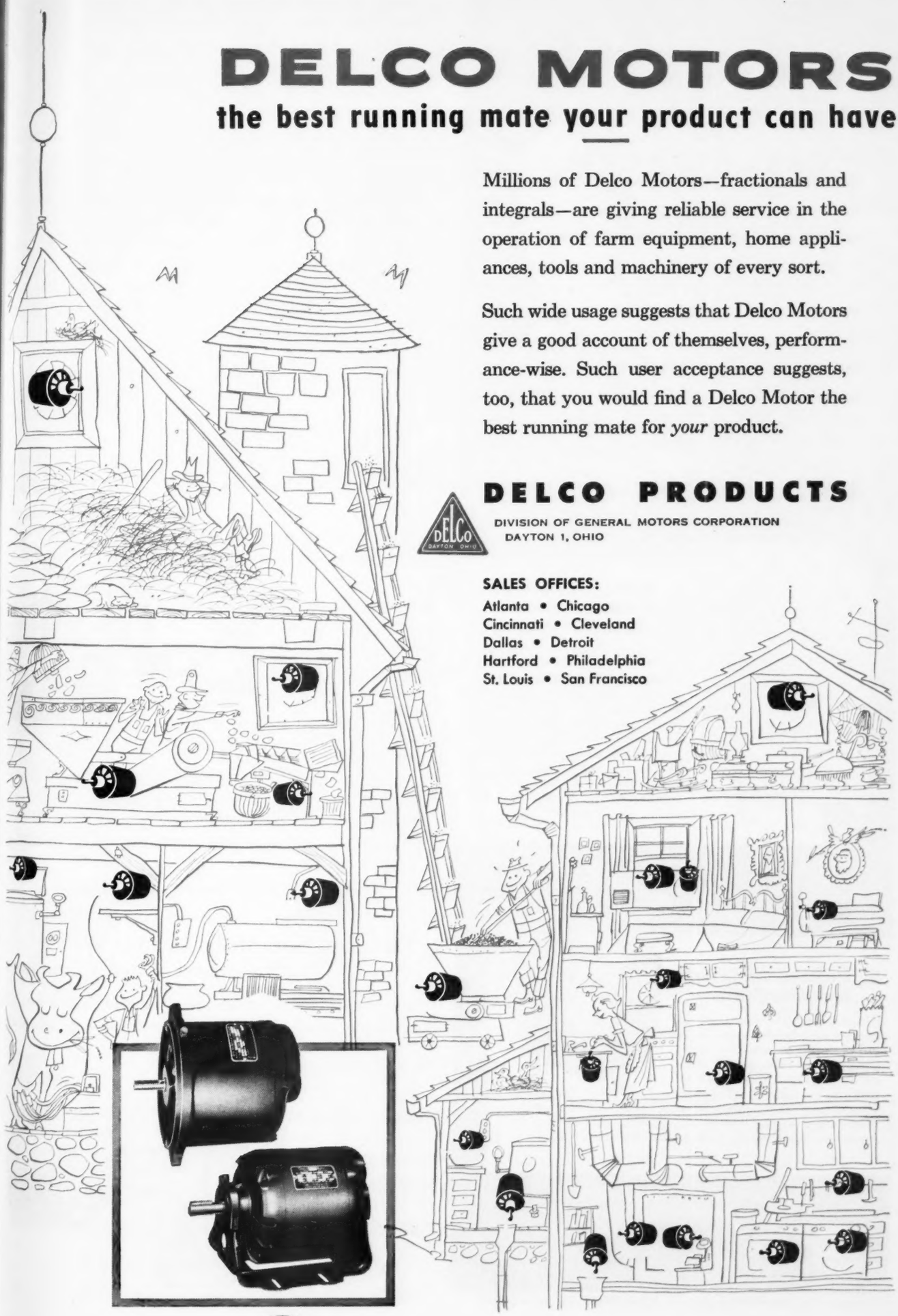


furnace provides warm air for the rooms. The furnace temperature drops as the result of operation of the forced-air blower, and the bonnet control switch opens, stopping the forced-air blower.

One set of contacts in the room thermostat now is closed; the circulating blower is not running because the furnace is cold. The room temperature then drops additionally, causing closing of the second set of contacts in the room thermostat. This starts the oilburner alone; when the furnace becomes warm, the bonnet control starts the forced-air blower.

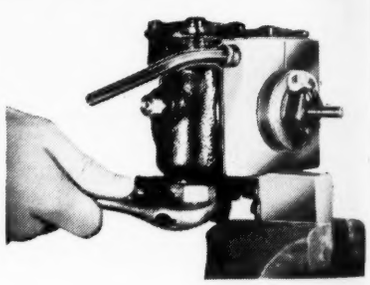
The big point is that with both sets of contacts in the room thermostat open because the house is warm enough, the forced-air blower does not run, even when the furnace is hot and its bonnet control switch therefore is closed.

Made by: Seifert Mfg. Co., 130 Ford, Highland Park 3, Mich.

Check E7 on coupon, page 148

Hydrovalve all-angle Jig holds fuel Units for service Work

UNIVERSAL ALL-ANGLE JIG, redesigned by Hydrovalve, holds all fuel units at any angle and without damage to



permit work on valves, seals or filters. Made of welded steel with a split collar type clamp, the jig permits use of long wrenches to remove locked or corroded nozzle ports and other components.

It can be used in constructing fuel unit testers or can be adapted for use on service trucks to permit on-the-job repairs.

Made by: Hydrovalve Co., 1319 Utica Ave., Brooklyn 3, N. Y.

Check E8 on coupon, page 148

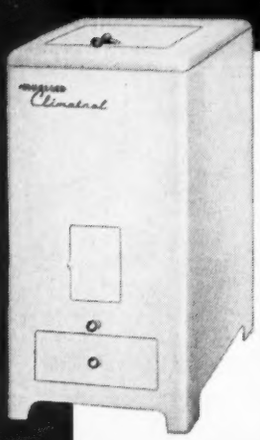
Taco adds new Model to Line of horizontal water Circulators

ADDITION of a new model has completed Taco's line of horizontal water circulators. The company now offers all

sizes from ¾" up to and including four sizes of 3" units. All are available in bronze as well as cast-iron.

The new model, HC25, is a 2½" circulator.

The complete line is covered in



1. MUELLER CLIMATROL INCINERATOR

Gas and electric models

Burns anything that will burn. Gas model is low-input, dehydrating type; operates continuously and automatically without smoke or odor. Electric model has timer. Each has big, 1.6-bushel capacity. Shipped assembled; easy to install. Requires no servicing. Handsome, standard grey or deluxe white models. Compact — 18" wide, 36" high, 24" deep.

2. MUELLER CLIMATROL DEHUMIDIFIER

Stops moisture damage in homes and businesses. Gets rid of damp basements, dripping pipes, rust, mold, mildew, musty odor. Many unique, exclusive features. Quiet, efficient, portable. Plugs into any standard electrical outlet. Costs only a few cents a day to operate. Attractively styled — finished in Mountain Spring Green.

D-166A

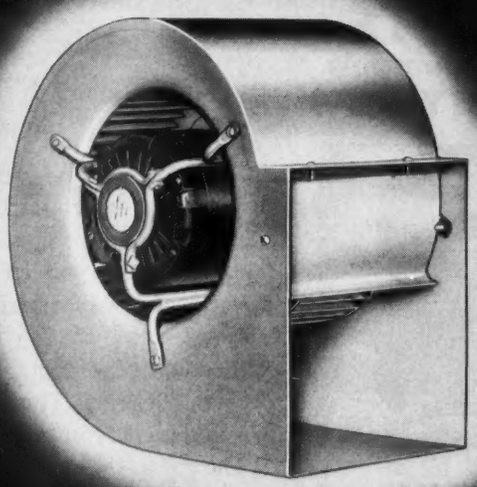
Write for bulletins that tell you more about these Mueller Climatrol profit-builders.

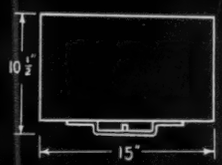
97th Anniversary

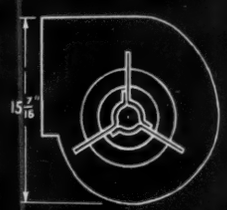
Mueller Climatrol

2050-D W. OKLAHOMA AVE. • MILWAUKEE 15, WISCONSIN

the newest *Brundage* development . . .







INSTALLS IN ANY POSITION

*ONLY 10-1/2" x 15" x 15-7/16" YET IT DELIVERS 1150 CFM AT .30 STATIC

*Direct Drive Units in higher and lower capacities also available . . . Information upon request.

THE *NEW* BRUNDAGE 9" DIRECT DRIVE BLOWER

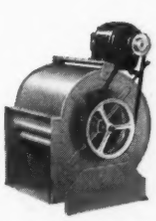
Here is one case where the biggest value comes in the smallest possible package. This new 9" Brundage Blower combines extremely high air handling capacity with a compactness and flexibility to make every cubic inch of equipment work to its fullest.

The internally mounted motor not only insures space economy and, by eliminating all belts and pulleys, it cuts the cost, ends a major maintenance problem . . . a design simplification that pays dividends in many, many years of superior service. To give you complete freedom of design, the 9" Brundage Blower may be furnished with mounting legs which allow you to place the unit in any convenient position . . . with full assurance of peak operating efficiency.

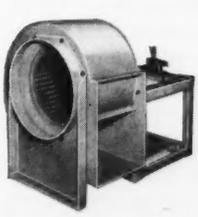
Test a Brundage 9" Blower in your own engineering department. Learn how Brundage design, construction and performance can add a new measure of quality to your products. We will be happy to provide everything you need to make a careful evaluation.

Ask about the Brundage production program. It is planned to simplify your inventory problems and free capital which might be tied up in blower stocks.

BLOWER-FILTER UNITS



BELT DRIVE BLOWERS



BLOWER EXHAUSTERS

SPECIAL BLOWER CABINET ASSEMBLIES

MEMBER INDOOR COMFORT

"INTEGRITY IS OUR TRADITION"

Brundage COMPANY

PRODUCTS OF CHARACTER

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KALAMAZOO, MICHIGAN

We would like to have further data on:
Direct Drive Blowers ( )
Belt Drive Blowers ( )

NAME.....

TITLE.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....

BASIC TEST TOOLS

FOR PROFITABLE SALES AND SERVICE

Combustion testing will pay you big dividends in gaining you competitive leadership and neighborhood recognition of your competence as a heating expert. The combustion-testing kit shown above contains precision-made, quality instruments with which you can make fullest use of your know-how in making a fuel conservation survey, adjusting any make and type of oil burner for clean, trouble-free and economical operation, or running an efficiency test which will convince even the most skeptical customer on the need for replacement or modernization.

The FYRITE Utility Kit contains instruments for measuring not only CO_2, stack temperature and draft, but smoke in the flue as well. The inclusion of the smoke-measuring instrument is a forward step of significant importance to alert heating dealers and service men. Checking the flue gas for both CO_2 and smoke makes possible to adjust the burner with speed and ease for highest possible combustion efficiency, as well as for clean burning of the fuel resulting in heating plant performance that satisfies customers and safeguards against costly service requirements.

The FYRITE Utility Kit shown above is part of the complete line of Bacharach Service Instruments for the Heating Trade which, in addition to Combustion Testing Kits, includes Temperature Recorders, Grille Velocity Indicators, Pyschrometers, and specialized oil-burner servicing equipment. Your wholesaler will gladly supply any of these instruments.

BACHARACH Industrial Instrument Company
7301 PENN AVENUE • • PITTSBURGH 8, PA.

a new set of literature being prepared which will include specifications and capacities.

Made by: Taco Heaters, Inc., 137 South St., Providence 3, R. I.

Check E9 on coupon, page 148

Blackmer "Gold Seal" truck Pump features cartridge-type Seal

"GOLD SEAL" pump—introduced during Blackmer's 50th anniversary—is a rotary truck pump which features a compact, cartridge-type mechanical seal. The cartridge can be replaced quickly without danger of damaging the sealing surfaces and without adjustment. TX-3 model, approximate size 16⅛" x 12½" x 12", weight 135 lbs., is nominally rated at 200 gpm; TX-2½, the other available model, delivers 100 gpm. The same pump is offered as a motor driven stationary unit for bulk plants.

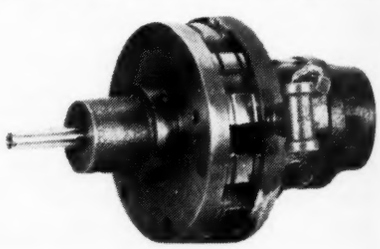
The "Gold Seal" incorporates Blackmer's sliding vane principle, whose non-metallic vanes are self-adjusting for wear. The pressure control valve is an integral part of the pump.

Made by: Blackmer Pump Co., Grand Rapids 9, Mich.

Check E10 on coupon, page 148

Flame Master low pressure Unit converts high pressure Burners

FLAME MASTER's low pressure fuel unit is intended for conversion of high pressure gun burners to low pressure operation. Its capacity range is from .50 to 6.0 gph and its installation is described as simple.



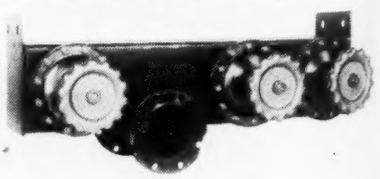
Interchangeable with high pressure units, the low pressure fuel unit operates on 1 to 2 lbs. atomizing pressure and features large openings in its air and oil nozzles. In addition, it permits tailoring the fire to meet heating demand.

Made by: Flame-Master Co., Inc., 3118 Milwaukee Ave., Chicago 18, Ill.

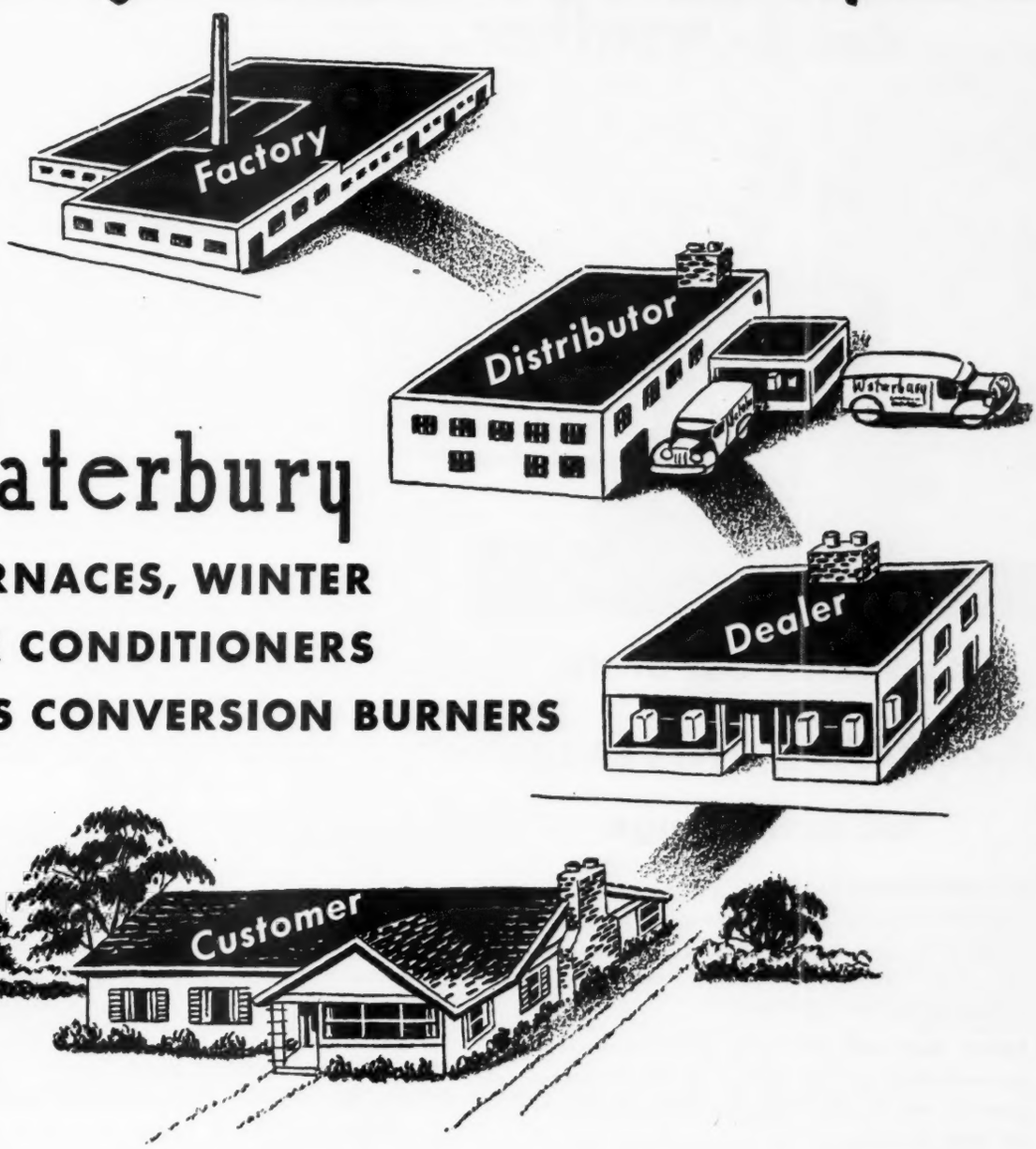
Check E11 on coupon, page 148

Betts adds Square Manifolds for over-the-road Transports

WARREN SQUARE MANIFOLDS, available in 2, 3 and 4 in. sizes, provide faster unloading for highway transport equipment with substantial weight savings. Increased discharge rate results from larger flow areas. Dimensions of the square manifolds are basically the same



The right choice... all the way!



Waterbury

FURNACES, WINTER AIR CONDITIONERS GAS CONVERSION BURNERS

Tied in with the ever-increasing movement of Waterbury furnaces from factory to customer is a whole series of right choices. At the factory, for instance, there is the selection of correct design, coupled with skilled craftsmanship. Waterbury distributors choose the complete, quality line with an organization maintaining a sound dealer-distributor-factory relationship. To the dealer, choosing Waterbury means the chance to offer this quality line to prospects already interested. And the customer finds Waterbury the answer to his heating problems, and passes the good word to his friends, who become Waterbury customers in turn.

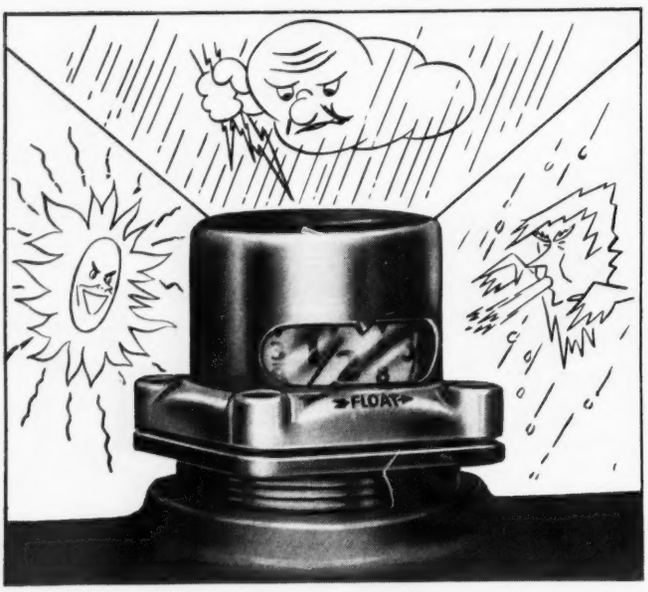
The Waterman-Waterbury Co.

OVER 47 YEARS OF WARM AIR HEATING

1171 Jackson Street N.E. • • • Minneapolis 13, Minnesota

fueloil & oilheat

NOW you can do something about the weather



It's sealed out of the Rochester UNIVERSAL® oil tank gauge

WEATHERPROOF! New head and flange design provides a shockproof, hermetically sealed unit that positively locks out dirt, moisture, and other foreign materials. This assures extra years of trouble-free service under *all* weather conditions.

STOCK JUST ONE GAUGE for all installations! It pays to standardize on ROCHESTER UNIVERSAL Gauges. Indoors or out, they'll remain accurate and easy-to-read for years to come.

NO SEEPAGE! NO FUMES! A powerful permanent magnet transmits float-arm action from tank to indicator . . . there are no holes in the gauge.

EASY TO READ. "DUAL DIAL" can be seen from front or back . . . makes tank filling and checking a snap.

EASY TO INSTALL and stocked by leading wholesalers everywhere for all standard oil burner storage tanks. Rochester Manufacturing Co., Inc., 8 Rockwood Street, Rochester 10, New York.

Rochester MANUFACTURING COMPANY, INC.
DIAL THERMOMETERS GAUGES AMMETERS

as for Warren cylindrical units, with the lengths of connections needed for the new units reduced in some instances.

The 3", 3-compartment unit, as an illustration of weight reductions, saves 15 lbs., a 24% over-all reduction in weight.

Made by: Betts Machine Co., Warren, Pa.

Check E12 on coupon, page 148

Hermetic port Valve and swivel Tee announced by Madden Products

DUO-TEST PORT VALVE (illustrated) provides a permanent gauge port on hermetic units. It can be mounted in any position; its forged brass body is machined and gasket is recessed. The valve has 1/4" male flare for 1/4", 5/16" and 3/8" tubing sizes.

A swivel tee also announced, designed for close, hard-to-get-at spots on hermetic units, enables installation of a pressure relief valve or gauge quickly. It also provides access to hermetics for purging, charging or testing. Male and female flares range from 1/4" to 3/8", pipe sizes from 1/8" to 3/8".

Made by: Madden Brass Products Co., 1111 N. Franklin St., Chicago 10, Ill.

Check E13 on coupon, page 148

Bell & Gossett adds new Model to Line of circulating Pumps

ADDITION of the #150 booster to its line has been announced by Bell & Gossett. It is a 1½" circulating pump with 1/12 hp motor. Identical to the #150 in delivery capacity and dimensions, the two pumps differ only in flange sizes.

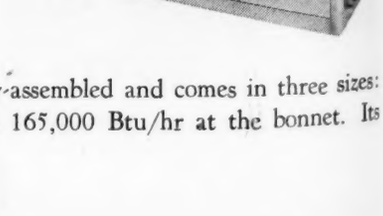
All models in the line—the others being #75 and #100—feature interchangeability of most of their parts. Available also in bronze construction for pumping service water.

Made by: Bell & Gossett Co., Morton Grove, Ill.

Check E14 on coupon, page 148

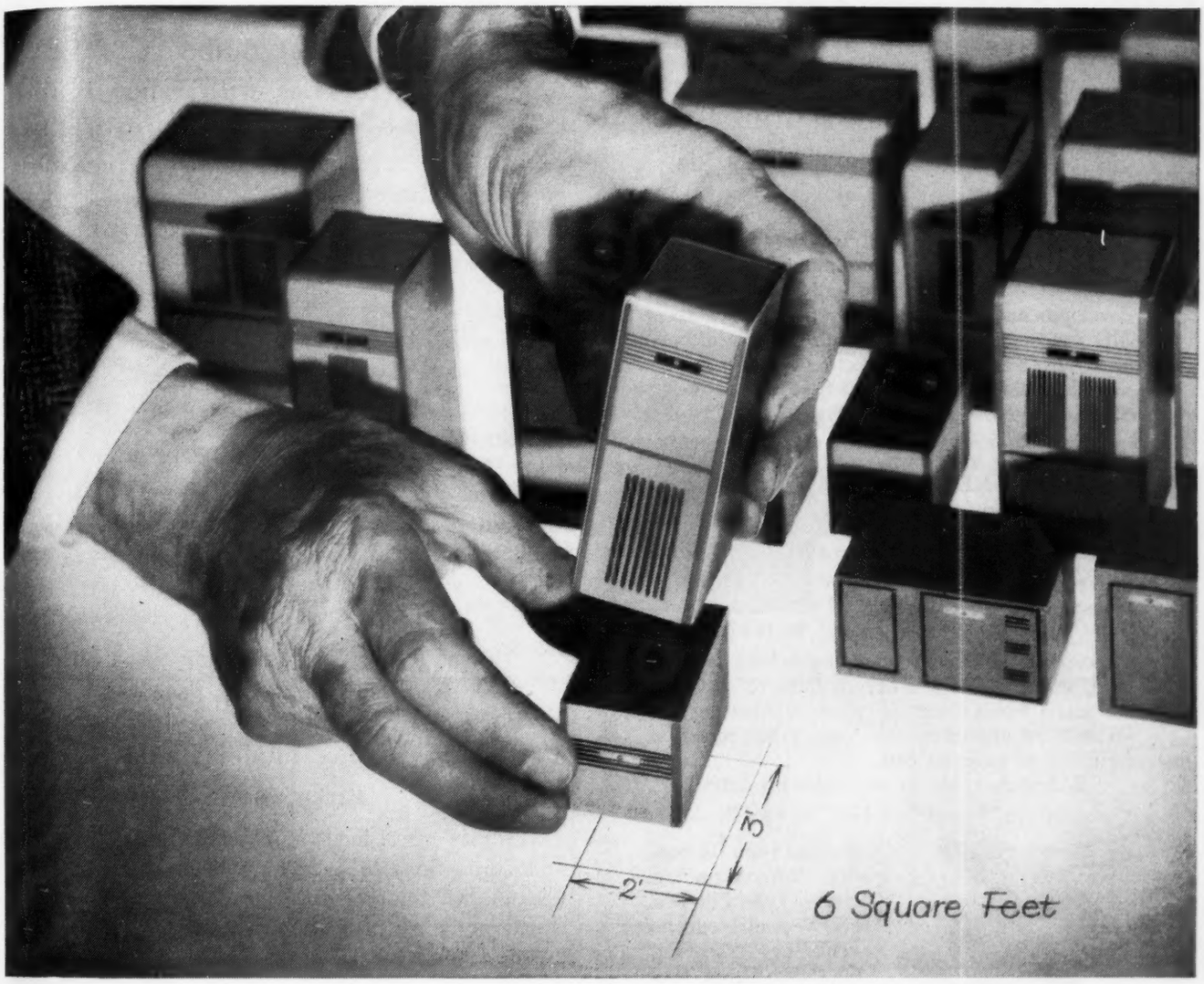
Thatcher horizontal furnace Unit available in three Capacities

THATCHER 532 is an oilfired horizontal winter airconditioner designed for installation in any convenient location or suspended from ceiling joists. In addition to residential heating applications it is offered for a variety of commercial heating problems.



The 532 is factory-assembled and comes in three sizes: 82,500, 115,000 and 165,000 Btu/hr at the bonnet. Its

Now—4,784 heating-cooling combinations from 50 basic G-E units...



...exclusive feature of "The Franchise with a Future"

UPFLOW, DOWNFLOW, HORIZONTAL UNITS—G. E. HAS THEM ALL · Assembling this new G-E Downflow Year-Round Air Conditioner is almost as easy as it looks in the picture. G. E.'s *Upflow* Furnaces and Cooling Units, and *Horizontal* Furnaces and Cooling Units, pair up the same way. Heats with gas or oil, cools by electric refrigeration (water- and air-cooled models). And with G-E *Air-Wall* System, whose registers handle heating and cooling equally well, the G-E dealer can tailor comfort to fit any home—sell modern living at its best.

New dealers are needed in this rapidly expanding field. Would you like to know more about your opportunities as a G. E.-franchised dealer? Then mail the coupon today!

G. E.'s 6-POINT PROFIT PLAN:

1. G. E. enjoys best consumer acceptance in the field.
2. Most flexible (and most copied) heating and cooling line on the market.
3. G-E units are easier to handle and install. Units are factory-wired, assembled and fire-tested ... pass through normal doorways without dismantling.
4. Factory training for your men, at G. E.'s application and service *field* schools.
5. G. E.'s consistent national advertising to homeowners and builders pre-sells your prospects.
6. G. E. supports you with local newspaper advertising, literature, displays, sales plans — to sell homeowners *and* builders.

GENERAL ELECTRIC

AIR WALL* SYSTEM

HOME HEATING and COOLING

*Reg. trademark General Electric Co.

General Electric Company, Home Heating and Cooling Dept., Sec. FO-5, Air Conditioning Div., Bloomfield, N. J.

Yes, I'm interested in your "Franchise with a Future." Tell me more. My principal business is .....

NAME .....

COMPANY .....

ADDRESS .....

CITY ..... COUNTY ..... STATE .....

fueloil & oilheat

TRIPLETS— at O. E. M.

The largest selling Vent Caps and Fill Boxes on the market now have 3 NEW BROTHERS.

fig. 10* & 11

One piece fill cap. Fig. 10* is a NEW Grey Cast Iron Fill Cap — identical to fig. 11, which is Aluminum Cast. These Fill Caps are ideal for large developments or projects. They need NO gaskets, NO washers and are FREEZE PROOF. Will open with any standard Fill Box key. Especially designed for basement tanks.
Sizes: fig. 10, 1½"*—2"*. Fig. 11, 1½"*—2".

fig. 12 & 13*

Slip on type vent cap. Fig. 13* is a NEW Grey Cast Iron Slip on Type Vent Cap — twin brother to fig. 12, Aluminum Slip on Vent Cap. These are the lowest priced, easiest to install Vent Caps on the market. Fig. 12 is not a stamping — both caps are solid, strong castings. They fit flush to the wall. Set screw holds them in place eliminating the necessity of threading the Vent Pipe. Screen is furnished at no extra cost.

Both caps come in the following sizes:
¾"* — 1" — 1¼" — 1½"*

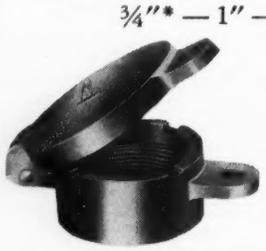


fig. 60G & 71A*

Hinged type fill box. Fig. 71A, Aluminum Hinge Type Fill Box, NOW available in the NEW 1½"* size. Fig. 60G, Iron Hinge Type Fill Box with the 1½"* size reduced in price, is similar to fig. 71A. These Fill Boxes are two of the lowest priced on the market. Heavy duty bodies with large overlap on caps prevents moisture, water, dirt, etc., from entering tank. Rigidly constructed "duckbill" hasps for use with padlocks.
Sizes: fig. 60G, 1½"* — 2" — 2½" — 3" — 4".

Fig. 71A, NEW 1½"*, also the popular 2"*.

* New item, New size or Reduced in price:
Note: When ordering, please indicate proper figure number and size.
O.E.M.'s Complete Line gives you satisfied customers, increased sales and higher profits. Write to O.E.M. for additional information.

Oil Equipment Mfg. Corp.
169 Derby Avenue — New Haven, Conn.

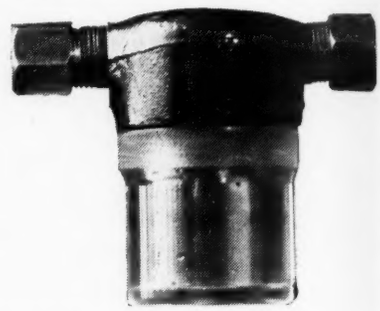
rounded corners and two-tone crinkle finish reflect Thatcher's standards for appearance and design.

Made by: Thatcher Furnace Co., Garwood, N. J.

Check E15 on coupon, page 148

G-1 gravity sediment Bulb for Use with range Burners

INDUSTRIAL SUPPLY'S G-1 gravity sediment bulb is intended for use in gravity fed fuel lines of range burners and hot water heaters. Placed in the fuel line between the tank and unit, the bulb traps foreign substances, such as water, lint, dust and dirt particles. It is easy to install and features a detachable, unbreakable bulb.



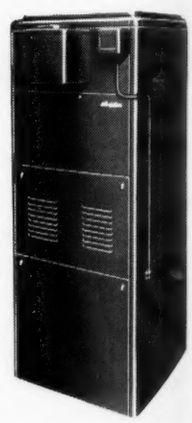
The trap, which is recommended also for use on pumps and compressors, has been approved by state safety boards in five New England states.

Made by: Industrial Supply, Inc., 246 Ontario St., Cohoes, N. Y.

Check E16 on coupon, page 148

Perfection Hi-Boy model F-604; three room Airconditioners

PERFECTION model F-604 is an oilfired furnace unit aimed at lowering home building costs. Standing 59-7/16" high the unit, which is fired with a pressure atomizing burner, may be installed in basement, utility room or other close quarters. The oil model has a 90,000 Btu/hr bonnet output.



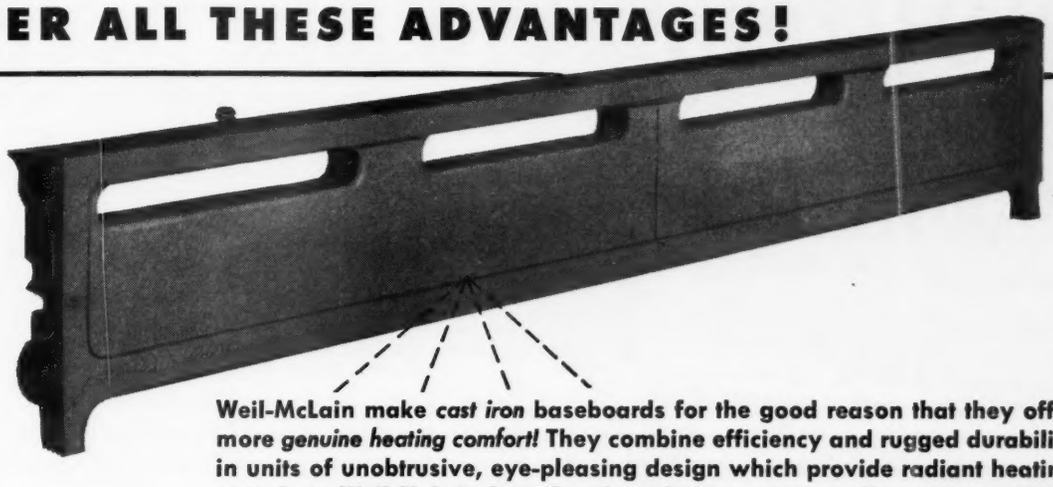
Standard equipment includes a direct-drive blower. A gasfired model also is offered. Both are finished in mesa red baked enamel which can be touched up if marred accidentally.

Three models of room airconditioners, ½, ¾ and 1 hp capacities, are being offered by Perfection Stove, providing cooling, heating and automatic operation. Ability of the unit to be slid into place simplifies its installation, while four adjustable grilles direct the flow of air in one or several directions. Thermostat is built-in at the factory.

Use of a casement window adapter permits these units to be installed without mutilating casement window sash.

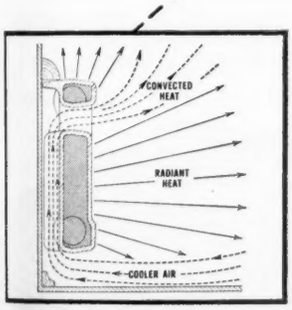
Perfection has designed a portable airconditioner utility cart, making it possible to being units to permanently-installed weather cabinets, where the unit slides into the cabinet. Thus, while cabinets may be installed in every

ONLY *CAST IRON* BASEBOARDS OFFER ALL THESE ADVANTAGES!



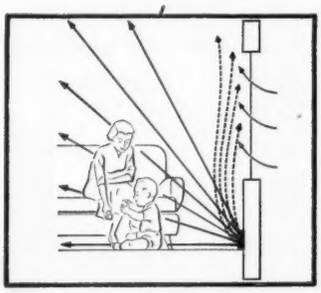
Weil-McLain make *cast iron* baseboards for the good reason that they offer more *genuine heating comfort!* They combine efficiency and rugged durability in units of unobtrusive, eye-pleasing design which provide radiant heating at its best. Weil-McLain Snug Baseboards are easier to sell—easier to install—and assure a satisfied customer.

These units enable you to profit from today's trend to baseboard heating in new building and, in addition, offer a distinct advantage in modernizing work. Only with *cast iron* baseboards can you modernize part of an existing radiator system and still maintain balanced heating.



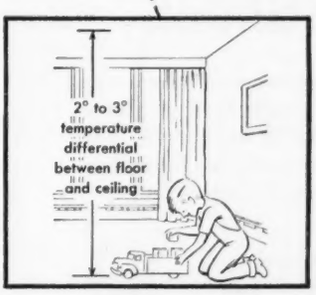
LARGE WATERWAYS

The ample water content of Snug Baseboards provides a reservoir of stored heat which eliminates "on-off" discomfort.



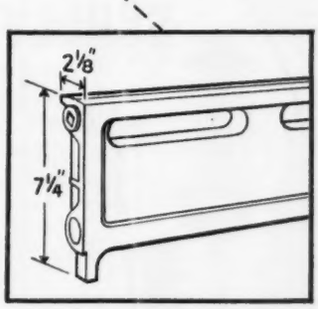
RADIANT HEAT

The water-backed front panel emits a high percentage of radiant heat—plus ample convected heat from rear fins.



EVENLY DISTRIBUTED HEAT

Temperature from floor to ceiling is virtually uniform—an important factor in maintaining children's com ort and health.

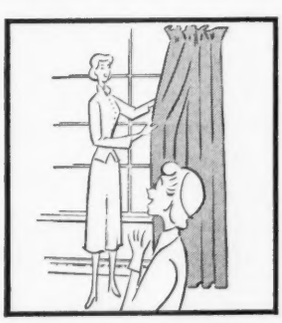


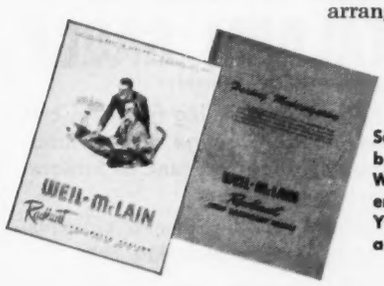
SMALL IN SIZE

Only 2⅛" wide x 7¼" high, Snug Baseboards are amazingly unobtrusive. They blend into room surroundings—don't interfere with draperies or furniture arrangement.

CLEANER—MAR AND DENT-PROOF—NOISELESS

The gentle heat flow from Snug Baseboards doesn't create strong air currents to stir up dust. Cast iron construction is dent-proof and assures freedom from expansion noises.





WEIL-McLAIN SALES TOOLS

Send today for these two booklets on Modern Hot Water Heating and Modernizing with Baseboards. You'll find them a valuable selling help.

WEIL-McLAIN

WEIL-McLAIN BOILERS · RADIATORS

SNUG RADIANT BASEBOARD PANELS

WEIL-McLAIN COMPANY • Dept. B-44, Michigan City, Indiana

3 ways to MODERNIZE oil burner installations

install VENTALARM® Whistling Tank Fill Signal

Here's the way to provide for modern, automatic oil delivery. Guarantees accurate, no-spill fills day or night, whether customer is at home or away.

"Just Fill While the Whistle Blows"

A variety of models for new and old tanks.

install SCULLY® GAUGE

Underwriters' Approved

A modern convenience in every way. Big figures readable at first glance. Face adjustable to any angle. Built for accurate, service-free operation. Specify tank depth when ordering.

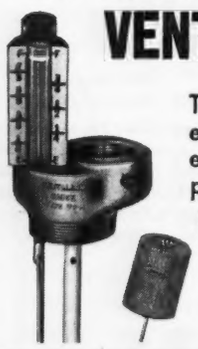
"BUTTON-LIFT" INSTALLATION

Lifting the button indicator draws cork arm up close to main shaft for easy installation even in partly filled tanks.

or install this combination . . .

VENTALARM® GAUGE

Underwriters' Approved



The famous whistling fill signal and easy reading gauge in one modern unit. Goes on tank as integral part of vent pipe.

Specify tank depth and opening when ordering.

One item to install instead of three . . . with button-lift convenience described above.

Scully Products are manufactured under U.S. and foreign patents or patents pending.

See your regular Supply House.

SCULLY SIGNAL COMPANY

174 Green St.. Melrose 76, Mass.

Canadian Licensee: EMPIRE BRASS MFG. CO., LTD., London, Ontario

©1953 Scully Signal Co.

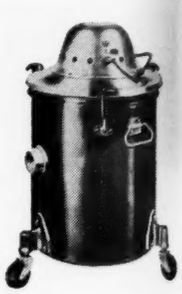
room of a hotel, hospital or building, the units themselves are brought to rooms only as needed.

Made by: Perfection Stove Co., 7609 Platt Ave., Cleveland 4, Ohio.

Check E17 on coupon, page 148

Empire Nu-Vac is lightweight Vacuum for furnace Cleaning

EMPIRE NU-VAC for boiler or furnace vacuum cleaning weighs 25 lbs. and contains a new type of motor delivering 70" of water lift at the hose end. Another innovation is an extra outlet on the top of the machine for a drop light.



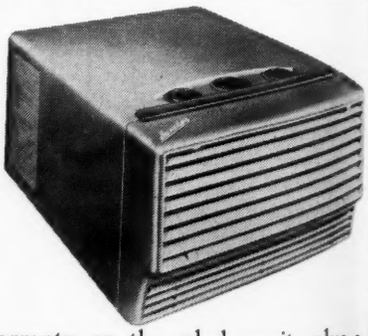
Also available is a choice of disposable, paper filter flameproof bag or long-lasting rayon bag. An outer cloth bag, reinforced with wire, surrounds the inner bag to prevent blowouts and protect the motor.

Made by: Empire Chemical Products Co., 10 Longworth St., Newark 2, N. J.

Check E18 on coupon, page 148

Window and console room Coolers announced by Burnham Corporation

FIVE MODELS of airconditioners have been announced by Burnham, three window models and two console units. Window models are the "Dutchess" 1/3 hp, the "Princess" ½ hp, and the "Queen of Comfort" ¾ hp. The Westchester is a console model in 1 and 1½ hp sizes.



All carry a 1-year warranty on the whole unit, plus a 5-year guarantee on the sealed cooling units.

The units provide cooling, dehumidifying, ventilating and optional heating under automatic thermostatic control. Setting is by finger-tip control dials. The window units are built on the tubular plan so that the housing is installed first and then the chassis added. In the same way, the chassis is removed easily for servicing.

Made by: The Burnham Corp., Irvington, N. Y.

Check E19 on coupon, page 148

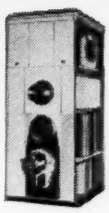
Tankit recommends Neutroda for treating air Filters

NEUTRODA fueloil deodorant, developed for neutralizing oil spills and leaks, has been found useful in warm air heating installations.

When sprinkled on air filters, the powder quickly destroys any fueloil odor which might penetrate the ducts.

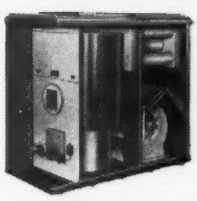
It's MONCRIEF'S *Complete* Line for *Complete* Installations

Gravity Heating . . . Forced Air Heating and *NOW*... Year 'Round Air Conditioning Units for Summer Cooling . . . Winter Heating

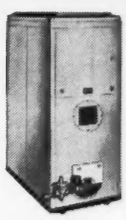


Counterflow Units Gas or Oil

Utility Units Gas or Oil

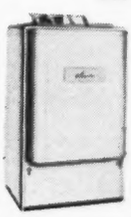


Winter Air Conditioning Units Gas or Oil

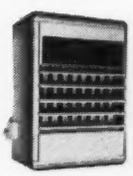


Gravity Furnaces Gas or Oil

Horizontal Furnaces Gas and Oil



Year 'Round Units Heats in Winter Cools in Summer



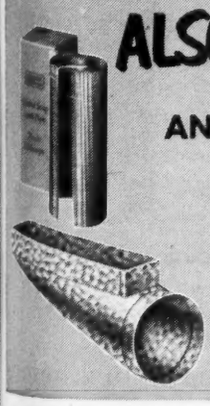
Unit Heaters Gas Fired

You can order a MONCRIEF Unit of practically ANY type or size for ANY heating or air conditioning requirement from your Moncrief jobber. He carries a complete stock in his warehouse.

- ...Counterflow Units
- ...Utility Units
- ...Horizontal Furnaces
- ...Unit Heaters
- ...Summer Cooling Units

ALSO

Gas Conversion Burners
Oil Conversion Burners
Incinerators



ALSO MONCRIEF'S SUREFIT SNAP LOCK Pipe and Fittings . . . Everything for ANY TYPE of Installation. AND . . . They're Carton Packed at

No Extra Cost to You!

Easier to Handle . . . Quicker to Assemble Quicker to Install

MONCRIEF

NOW More Complete Than Ever for Greater Profits . . . Easier Selling . . . Easier Ordering . . . Get Everything from ONE SOURCE . . . Your MONCRIEF Jobber

THE HENRY FURNACE COMPANY

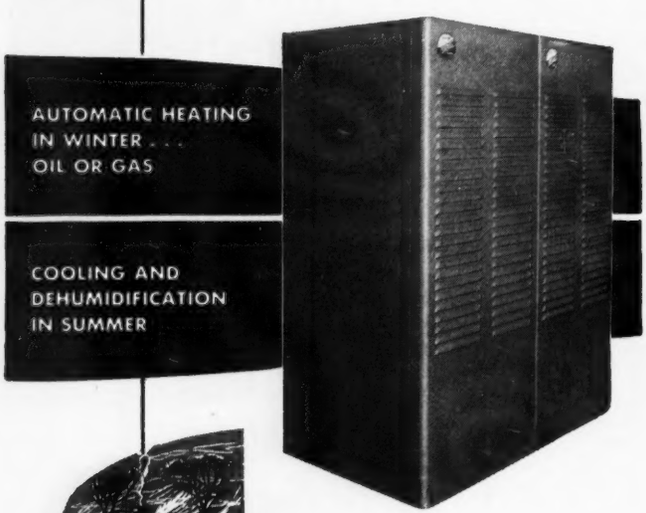
MEDINA, OHIO

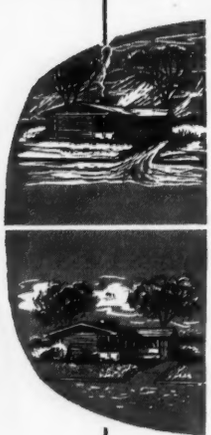
HEATING AND AIR CONDITIONING UNITS — MONCRIEF SINCE 1905 — FURNACE PIPE AND FITTINGS

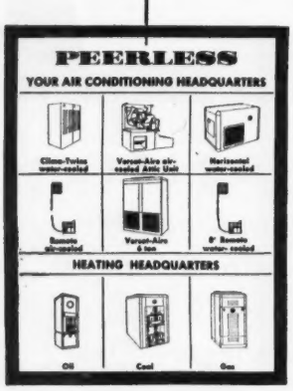
fueloil & oilheat

Catch your eye?

. . . wait 'til you see the New Clima-Twins by PEERLESS







The beautifully designed Clima-twins are the answer to the industry's demand for compact year-'round air conditioning. The all-important heating cycle provides the same dependable perfection traditional with all Peerless heating equipment. When necessary to "step down," the heating unit may be installed and cooling unit added at a later time . . . one "upstairs" control for both.

The new Peerless "4-for-1 Deal" is tailored to your heating and air conditioning equipment needs. Write for details today.

PEERLESS

Peerless Furnace & Foundry, Inc., 1953 Ludlow Avenue
Indianapolis 7, Indiana

Please rush me details on your new "4-for-1 Deal":

Name_____

Address_____

City_____ State_____

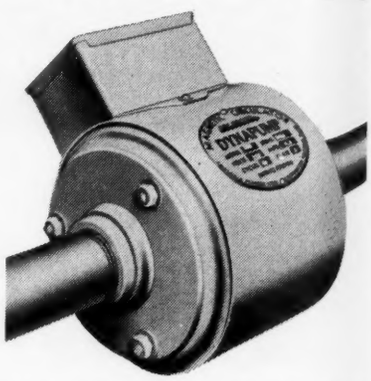
More important, probably, Neutroda is said also to destroy mildew odors which can occur during the start-up period at the beginning of a heating system.

Made by: The Tankit Co., 174 Goldsmith Ave., Newark 8, N. J.

Check E20 on coupon, page 148

Dynapump magnetic Pump for hot water heating Systems

DYNAPUMP is a magnetic pump for circulator applications. it is described as quiet in operation, with all pump parts made of corrosion-eliminating stainless steel. One standard unit accommodates interchangable flanges from ¾" to 1½".



Dynapump has no shaft seal or motor bearings. It is compact and light in weight. The unit gives heads of 24 ft., making it adaptable for radiant or baseboard heating jobs.

Made by: Fostoria Pressed Steel Corp., Fostoria, Ohio.

Check E21 on coupon, page 148

Supertex Filter protects vacuum cleaner Bags against Blowouts

SUPER MODEL AF commercial suction cleaner, designed for heating plant and airconditioning service, features an inside Supertex filter for protection against filter bag blowouts. Combining wet and dry pick-up in a portable unit, Super Model AF is equipped with the same motor employed in larger Super furnace cleaners and incorporates the same durability.

All Super special cleaning tools can be used with the Model AF. It is a low-priced, small size and lightweight unit.

Made by: National Super Service Co., Inc., Toledo, Ohio.

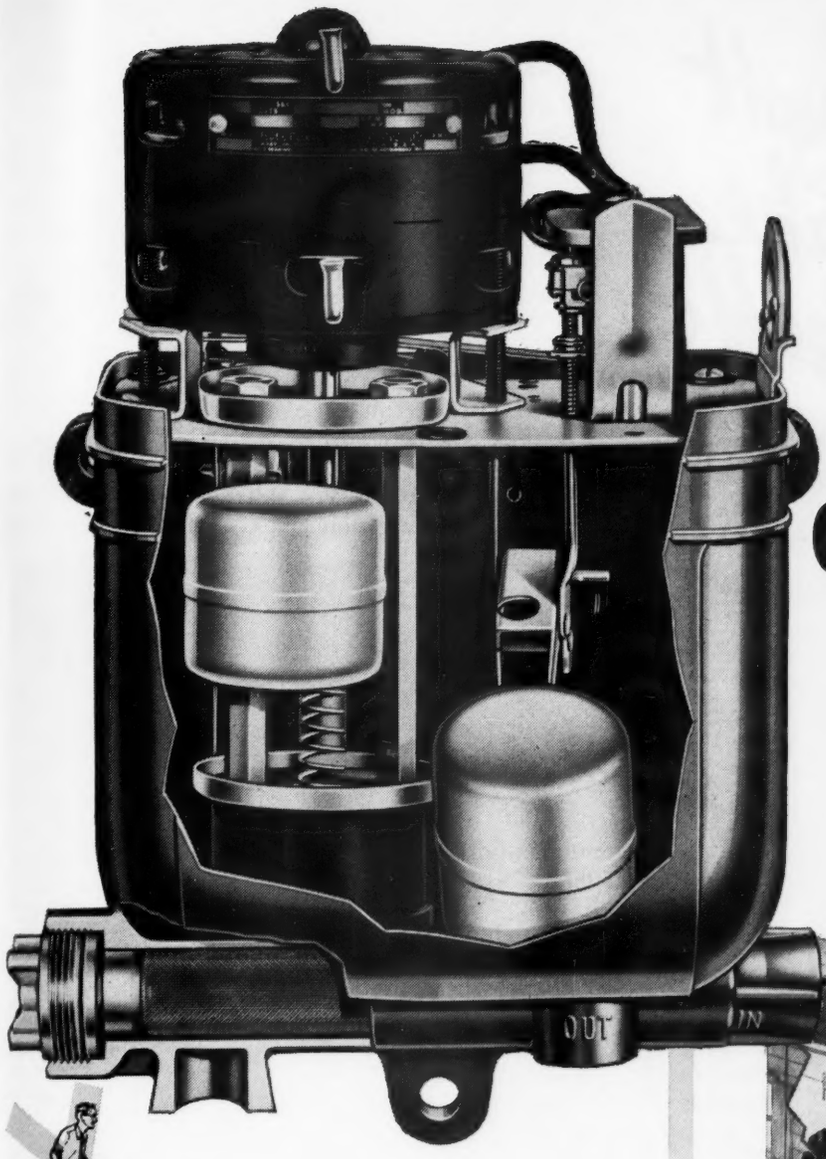
Check E22 on coupon, page 148

Kemsol Auxiliary Factor No. 10 inhibits Sludge in Fueloils

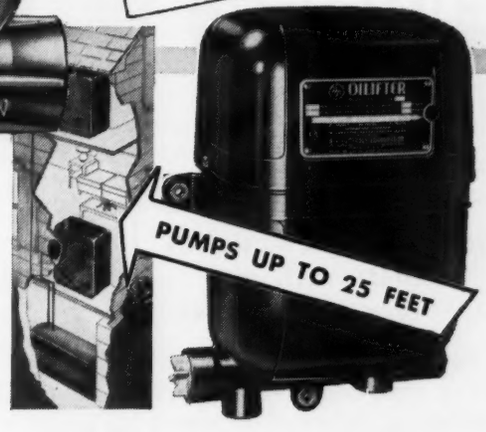
KEMSOL Auxiliary Factor No. 10, when mixed with fuel oil as an inhibitor, is designed to prevent formation of varnish, lacquer or gummy deposits in supply lines and to keep sludge from building up in the tank. Its action is described as dispersing the sludge so that it can be burned and to gradually clean the tank. Also, it has a tendency to

SELL 100% FREEDOM from all OIL HANDLING with this

Oilifter



It's easy to sell this profitable A-P mechanical wizard — because it positively eliminates *all* fuel oil lugging . . . ends handling messy cans and spilling forever. That's because Oilifter pumps fuel at 4½ gallons per hour at 10 ft. lift or 3 gallons per hour at 25 ft. lift. Pumps from a submerged tank up to a furnace or from a basement or ground-level tank to a heater on the third floor if necessary. And it's all done automatically!



Only the Model 356 Oilifter gives you all these features:

- **POSITIVE PROTECTION AGAINST OVERFLOW** — safety float maintains normal operating level.
- **100% SAFE** — automatic cut-off switch stops operation if tank becomes dry.
- **TROUBLE-FREE OPERATION** — 100-mesh strainer stops dirt and impurities in the oil.
- **EASY TO INSTALL** — just takes 3 screws to mount.

Send for free supply of literature to back you up — and cash in on oilifters today!

DEPENDABLE *Controls*

for Air • Liquids • Gases • Refrigerants

A-P CONTROLS CORPORATION

2458 N. 32nd Street, Milwaukee 45, Wisconsin • *In Canada*: A-P Controls Corp., Ltd., Cooksville, Ont.

Don't take half-

GET ALL THE FEATURES

WITH A

Pullman

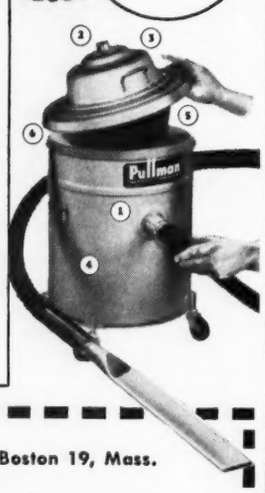
FURNACE & BOILER VACUUM CLEANER

and Power Blower

CONVERTS TO POWER BLOWER IN 2 SECONDS

COMPARE THESE PULLMAN FEATURES WITH ANY OTHER VACUUM CLEANER

① Powerful turbine type suction **and** ② automatic power blower coupling. ③ Balances for one-hand carry **and** ④ has low, non-tip, center of gravity. ⑤ Auxiliary disposable paper filter **and** ⑥ NO outside bag to snag or tear.



CUT HERE

OHI Pullman Vacuum Cleaner Corp., Boston 19, Mass.

Send information on Boiler & Furnace Vacuum Cleaning.

SIGNED

COMPANY

STREET

CITY ZONE STATE

deposit a protective film on metal surfaces, reducing surface tension and aiding in the dispersion of the fueloil.

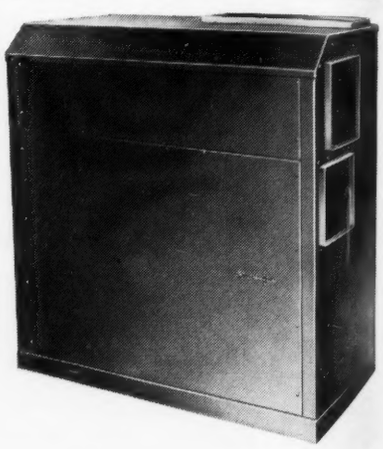
As an inhibitor recommended dosages are 1 pt. per 1,000 gals. for No. 2 or No. 5 oil; 1 qt. per 1,000 gals. of No. 6 oil. As a detergent or solvent, 1 qt. is used per 1,000 gals. of No. 2 or No. 5 oil, 2 qts. per 1,000 gals. of No. 6 oil. To pick up sludge the additive is applied 3 to 5 gals. for each 1,000 gals. of No. 2 or No. 5 oil, 5 gals. or more for each 1,000 gals. of No. 6 oil.

Made by: Kensol Products Co., Cleveland, Ohio.

Check E23 on coupon, page 148

Remington 3rd way System of residential Airconditioning

REMINGTON has introduced a line of residential airconditioners which require a minimum of ductwork. The units span the airconditioning provided by central systems and conventional room units. These are air-cooled units that can be installed in basement, attic or utility room and by means of ductwork or a plenum space, aircondition two, three or four rooms that are used the most. Cooling then is not provided for unused or seldom occupied rooms.



Three models are included in the line: the 120 "Two Roomer" (illustrated) with 1 hp capacity; model 180, 1½ hp and the 250, 2 hp unit. The 180 and 250 units will aircondition three and four rooms. Units installed in attics would have ceiling outlets in upstairs bedroom; basement units would cool downstairs room through diffuser type floor outlets.

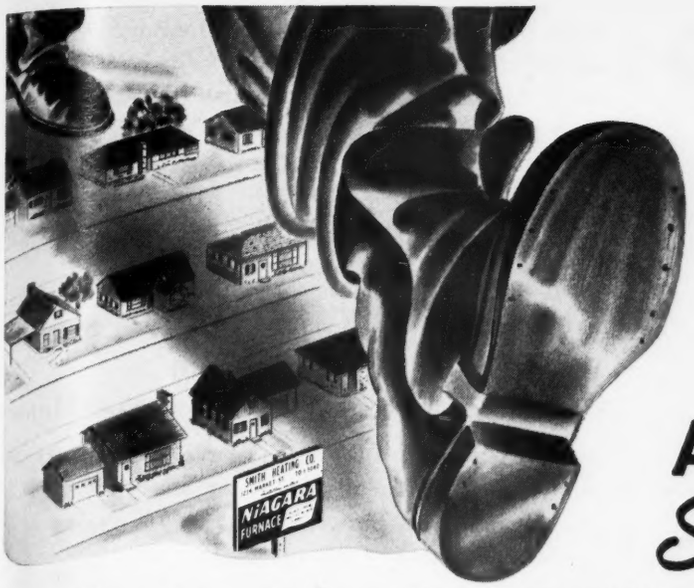
Made by: Remington Air Conditioning Div., Auburn, N. Y.

Check E24 on coupon, page 148

Autocar diesel Tractor reduces Length of Cab and Wheelbase

AUTOCAR's DCU-75TN is a conventional type tractor, actually a snub-nosed personification of a standard diesel, with part of the engine projecting into the cab. Developed after road tests with 20 pilot models, it has been designed to pull longer trailers and stay within 45 ft. maximum length.

Equipped with diesel engines up to 200 hp, the new



Again!

NIAGARA ADVERTISING *Steps Forward!*

Creates Sales Opportunities for *NIAGARA* Dealers

In 1954 NIAGARA national advertising will appear in the several million copies of publications illustrated here, delivering news of the advantages of Niagara furnaces to all these live prospects everywhere . . . home builders . . . home buyers . . . home modernizers. The NIAGARA name will be impressed upon even more of your furnace prospects than ever before.

DELUXE SERIES 50

OIL-GAS CONVERTIBLE

THE *NIAGARA* LINE includes:

- Furnaces for homes of any style and size, ANYWHERE.
- Furnaces for all fuels: gas, oil, coal.
- Furnaces with cast iron and steel heat exchangers (including Deluxe gas-fired cast-iron models for those who want the very finest — wonderful prestige-builders for those who install them).
- Oil-Gas Convertibles: high-boy up-flow and down-flow: also gravity and forced-air models for basement installations.
- Summer Cooling units, designed to use blower, filter and ducts of forced-air heating system for circulation of refrigerated air.

Have YOU investigated the Niagara possibilities in YOUR territory? Write for details.

NIAGARA FURNACE DIVISION
The Forest City Foundries Company
2500 West 27th St., Cleveland 13, Ohio

NIAGARA is the word for MAXIMUM HEAT at MINIMUM COST

For Dependable Wiring—
CHESTER
plasticord-plasticote
WIRES & CABLES
"ABC" ARMORED THERMOSTAT CABLE (UL APPROVED)
OIL BURNER IGNITION CABLE FOR DAMP LOCATIONS UL APPROVED
The CHESTER label on your wires and cables is assurance of an extra measure of reliability because CHESTER ruggedized plastic coatings give you maximum immunity to water, abrasion, oil and destructive chemical attack. CHESTER Wires and Cables offer easier working qualities, are built smooth to pull through conduit with minimum effort. All CHESTER constructions are laboratory and field tested to exceed service requirements.
STANDARD OIL BURNER IGNITION CABLE
FLEXIBLE STEEL CONDUIT
PLASTICOTE THERMOSTAT CABLE
TW BUILDING WIRES
INSTRUMENT WIRE
"Chesty" says — For Dependable Wiring, Connect It with Chester!
CHESTER CABLE CORP.
CHESTER, NEW YORK

model reduces the distance from front bumper to the back of the cab to 106", compared with 123" in conventional Autocar diesels. At the same time the wheelbase measures 131", compared with 142". The end of the diesel engine projecting into the cab is covered with an insulated metal casing, removable for maintenance.

Made by: Autocar Div., White Motor Co., Ardmore, Pa.

Check E25 on coupon, page 148

Weather-Flo outdoor Control for Use in low cost Homes

THE 3-WAY WEATHER-FLO, outdoor type temperature control for regulating heating of low-cost homes automatically senses temperature changes outdoors, indoors and in the warm air supply duct or hot water pipe. The control raises the temperature of air or water being circulated through the house, without stopping or changing the volume being circulated.

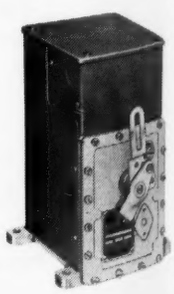
It consists of a 50-ft. copper tubing capillary connected to a flexible metal bellows. A pressurized liquid inside the capillary expands or contracts as temperatures vary at the three control points. This variation moves the bellows which actuates a switch and lever mechanism to turn the burner on or off. A variator knob on the Weather-Flo permits selection of various levels of warmth.

Made by: Automatic Devices Co., Inc., Western Springs, Ill.

Check E26 on coupon, page 148

M-H combines electronic Controls in Package for Heating and Cooling

HONEYWELL has announced a "package" electronic heating-cooling control for use in commercial buildings, combining an electronic relay and "Modutrol" motor into a single unit. This eliminates the need for a separate control panel in many installations. Suitable for use in a relatively simple heating-cooling installation, the combination unit requires only one indoor thermostat and a "weathercaster" thermostat mounted outside the building or in the outdoor air intake. Temperature detection in the "weathercaster" is by a coil of fine wire, which responds to 1/15th of one degree of temperature change.

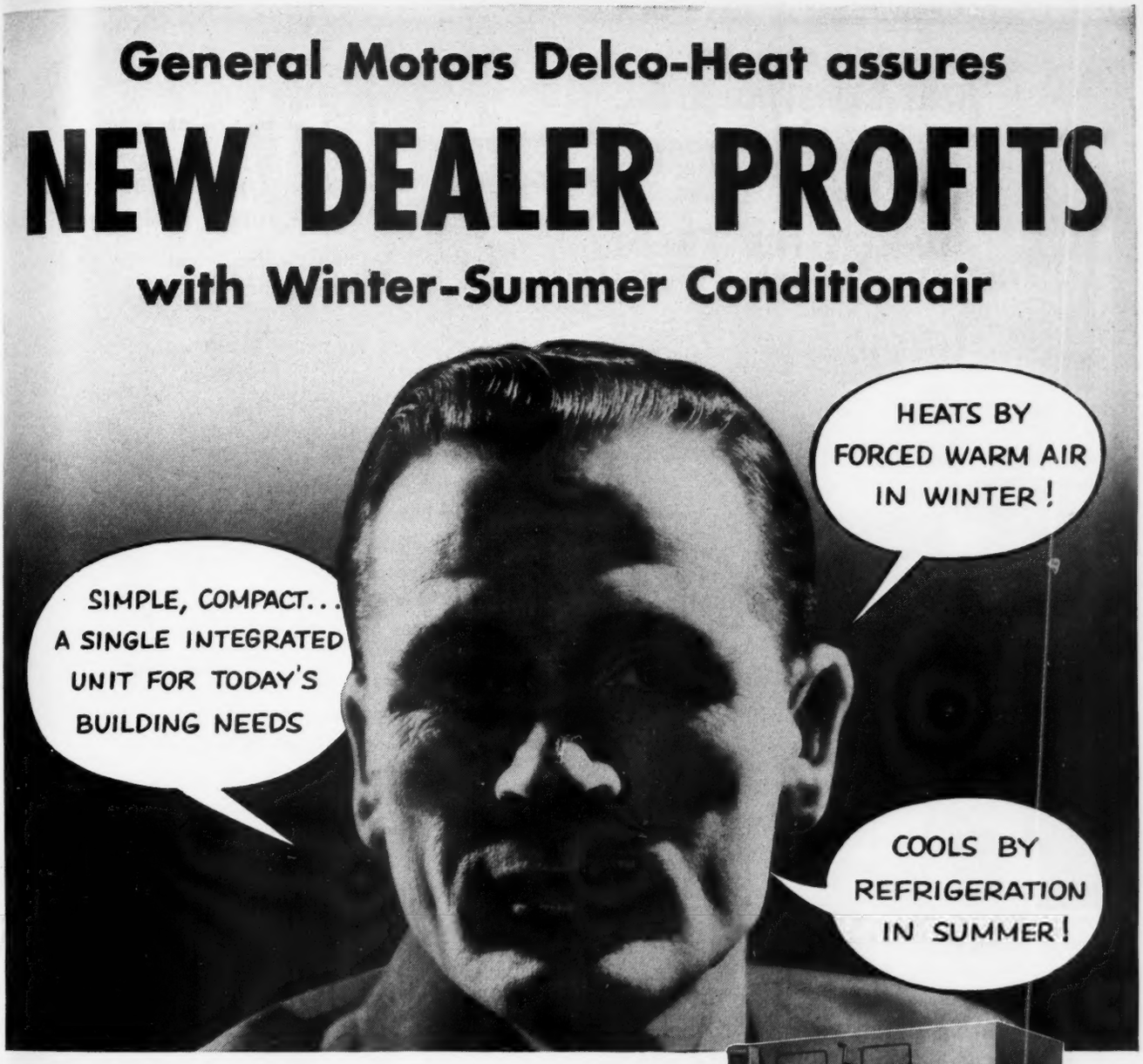


The system also can be used in large zoned systems where signals from several electronic thermostats must be coordinated by the relay to actuate the motor valve or damper. In either type of installation the electronic system provides automatic temperature adjustment according to outside weather changes as well as such factors as

General Motors Delco-Heat assures

NEW DEALER PROFITS

with Winter-Summer Conditionair


SIMPLE, COMPACT... A SINGLE INTEGRATED UNIT FOR TODAY'S BUILDING NEEDS
HEATS BY FORCED WARM AIR IN WINTER!
COOLS BY REFRIGERATION IN SUMMER!

Reap the cash rewards in year 'round air conditioning

Now General Motors opens up great new profit opportunities for dealers with a combination heating-cooling unit that answers builders' needs for low-cost, packaged, year 'round air conditioning.

The Delco Winter-Summer Conditionair is a compact central unit for forced warm air heating with oil or gas, and for cooling by refrigeration. Even, low-cost comfort assured by Circle-Air heat transfer system and centrifugal blower. Includes filtering, ventilation, complete humidity control. It offers home builders greater freedom in home planning because it permits elimination of many design compromises that add to the cost of a house. Items like breezeways, porches, screens, movable sashes can be forgotten when Delco Winter-Summer Conditionairs are installed!

Write or wire: Delco Appliance Division, Dept. FO, General Motors Corp., Rochester 1, N. Y. In Canada, Delco-Heat, Toronto 13, Ontario.

GM
GENERAL MOTORS

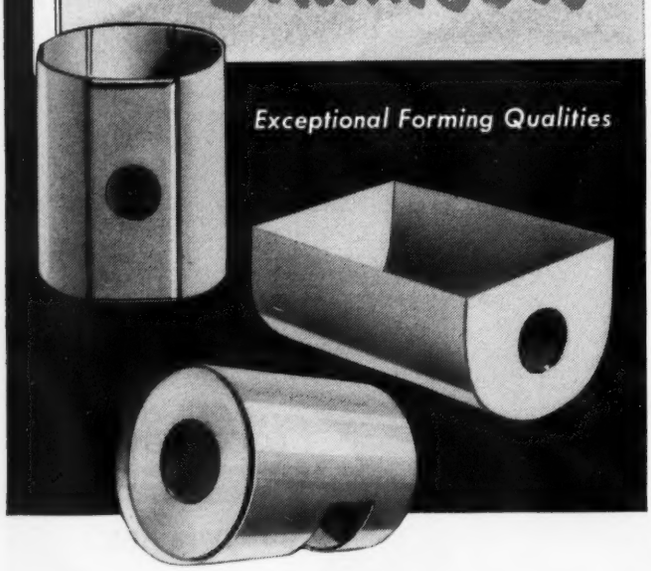
DELCO CONDITIONAIR

For a good deal . . . deal with DELCO

. . . a complete line of automatic oil and gas fired conversion burners, Conditionair forced warm air furnaces and heating and cooling units, boilers, water heaters and electric water systems.

fueloil & oilheat

HEAT-RESISTING STEELS
SHEARED
TO SIZE FOR YOUR
Combustion Chambers



Ingersoll *specializes* in producing heat-resisting stainless steels—of *exceptional forming qualities*—specifically for oil burner combustion chambers.

Whether you use these steels in large or small quantities, Ingersoll facilities offer exceptional service by custom shearing to your own specified combustion chamber blanks, or multiples thereof.

Advantages
OF HEAT-RESISTING STEEL CHAMBERS

- No breakage in shipment or handling
- Lighter weight lowers freight costs
- Quicker heating—greater efficiency

ENGINEERING B-W PRODUCTION

Write, wire or phone for details

Ingersoll STEEL DIVISION
Borg-Warner Corporation
310 S. Michigan Ave., Chicago 4, Illinois
Plant: New Castle, Indiana

building occupancy, prevailing winds, sunlight or shade.

Made by: Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

Check E27 on coupon, page 148

Williamson cooling Units offered in Models for 2 and 3 ton Jobs

WILLIAMSON HEATER has added 2- and 3-ton space refrigeration systems which require only 2.7 sq. ft. of floor space. They are designed sectionally, with the basic cooling unit measuring 21¾" wide, 18" deep, and 44" high. This unit is for connection to an existing forced warm air heating system.

For owners of gravity systems or those desiring greater blower capacity, a compact blower package is added on top of the basic unit, as illustrated. Finally, a space cap converts the cooler into a unit for offices or stores.

These units are completely automatic and require only a thermostat setting to operate the refrigeration system. A summer-winter thermostat of both cool and warm airconditioning.

Made by: The Williamson Heater Co., 3500 Madison Rd., Cincinnati 9, Ohio.

Check E28 on coupon, page 148

Eclipse adds new packaged Scotch-Marine boiler Unit

ECLIPSE announces a packaged Scotch-Marine boiler with 125 hp maximum rating for light or heavy oil, gas or combination firing. Available with automatic controls for all operating requirements, the boiler follows requirements of the ASME Code. Completely assembled and wired, the unit is ready for operation after connection of electricity, steam, water, fuel and stack. Features are large steam space, combustion area, water storage area and heating surface.

Equipment includes boiler shell mounted on a steel platform, flue gas collector, burner, air blower with direct-connected motor, oil solenoid valve, ignition transformer, low water fuel cut-off with water level control switch, electronic flame failure protection, switches and gauges.

Made by: Eclipse Fuel Engineering Co., 1002 Buchanan St., Rockford, Ill.

Check E29 on coupon, page 148

Mortemp furnace Unit designed to fit inside house Chimney

CHIMNEY FURNACE has been designed to fit entirely within the masonry walls of a 25" square chimney. The furnace is a counterflow model, with a heat exchanger that extends 9 ft. up the chimney. In addition, the stacks for exhausting combustion gases provide 2,500 sq. ins. more of radiation

NEW SPENCER SUBURBAN

THE OIL-FIRED BOILER BURNER UNIT

with the beauty and convenience of a kitchen appliance!

NEW PRODUCT

COMPLETE NEW HEATING UNIT

combines "kitchen appliance" beauty with "code boiler" dependability . . . offers easier installation and servicing

Here's a boiler that fits into modern —or remodeled—homes as easily as today's kitchen appliances. It's the Spencer Suburban, a ready-to-install unit for today's basementless homes. It also makes boiler location in older homes much more flexible.

Here's why: The Suburban fits in anywhere. It's compact. It can be set right on a wooden floor—requires no special base. It's so beautiful there's no need to hide it. Completely enclosed in a gleaming white beauty jacket, it rivals kitchen appliances or modern laundry equipment in attractiveness. Connections easily concealed.

Easier to install, just hook up electrical connections, oil and water lines and smoke pipe. That's all.

Easy to service, readily removed plate on top makes all fire tubes easily accessible. No need to disturb jacket or smoke pipe when cleaning. Controls and all working parts can be reached from the front for easier servicing.

Conforms to ASME and SBI Code, the newest member of Spencer's Complete Line, like all Spencer products, conforms to ASME and SBI codes.

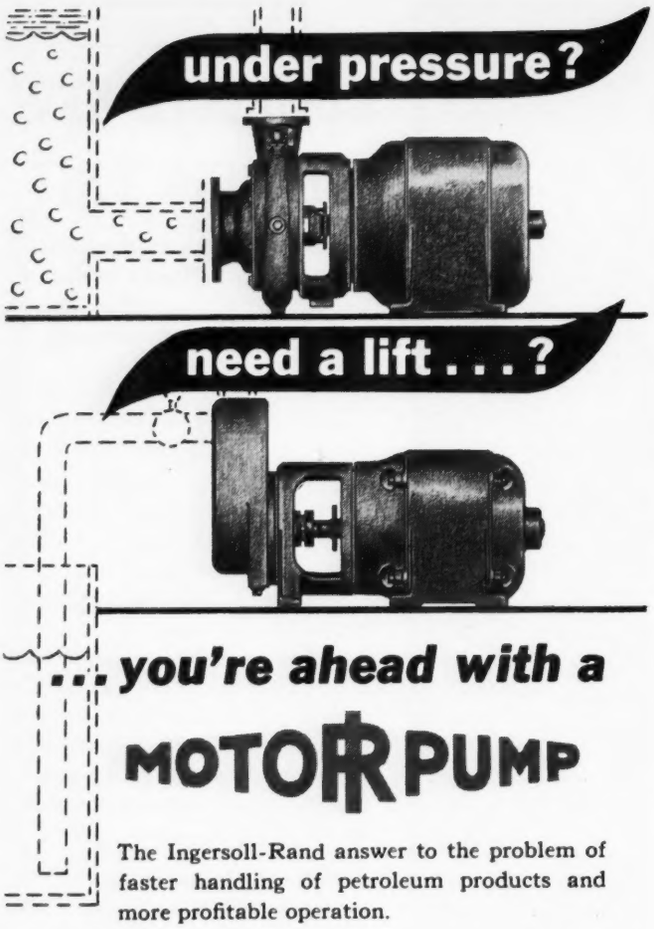
510-Sq.-Ft. Net SBI Water Rating
Dimensions — Only 21½" x 32½" x 56"

SPENCER
HEATER
LYCOMING DIVISION
WILLIAMSPORT AVCO PENNSYLVANIA

Spencer Heaters, Dept. FO-4-4
Lycoming Division
AVCO Manufacturing Corp.
Williamsport, Pennsylvania

Dear Sirs:
Please send additional information, including full specifications, on the new Spencer Suburban to:

Name_____
Position_____
Company_____
Address_____
City_____ Zone_____ State_____



. . . you're ahead with a

MOTORPUMP

The Ingersoll-Rand answer to the problem of faster handling of petroleum products and more profitable operation.

For aboveground-tank service Ingersoll-Rand Motorpumps are the answer to modern bulk storage and distribution of petroleum products. They are designed by experienced engineers who know what makes a better pump and built to the highest quality standards in the industry. The result is long-life with little maintenance—and peak performance with long life.

For underground-tank service the Ingersoll-Rand self-priming Motorpump is first-choice. The open impeller, only moving pump part, is designed for fast vapor removal . . . just one of many reasons why I-R Pumps are top dollar-values.

Find out how Motorpumps can help you to more profitable operation. Mail the coupon below to:

Ingersoll-Rand
11 Broadway, New York 4, N. Y.

MOTORPUMP

9-56

Ingersoll-Rand
11 Broadway, New York 4, N. Y.

Gentlemen:
Please send me the story of Motorpumps for Petroleum Service.

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

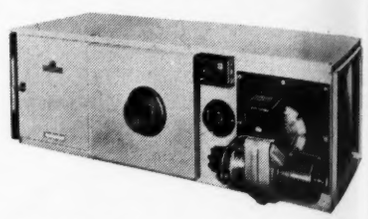
surface within the chimney heat exchanger. Blower and controls for this forced air unit become an integral part of the chimney. Btu ratings can be varied from 50,000 to 105,000 Btu/hr.

Chimney Furnaces are oilfired, the flange-mounted gun type oilburner being the only component that is located outside the chimney. The lower furnace is made of nickel alloy stainless steel; upper furnace is glass-coated Vitro-liner which extends up the chimney to the airstop. Installed within the chimney, the furnace, when located near the center of the house, can heat rooms from openings in the chimney base without ductwork.

Made by: Mortemp Products Corp., Box 386, Rockville, Md. **Check E30 on coupon, page 148**

Mayflower's new furnace Unit designed for ceiling Suspension

MAYFLOWER announces a new horizontal oilfired winter airconditioner with capacity of 90,000 Btu/hr at the bonnet. It is adaptable for suspension installation in attic, crawl space, utility room or basement.



Designed for the small and medium sized home market, the unit emphasizes space saving. It is factory assembled and measures 22½" high, 24" deep and 65" long.

Made by: Mayflower Air-Conditioners, Inc., East Seventh at Duluth Ave., St. Paul 6, Minn.

Check E31 on coupon, page 148

READER SERVICE COUPON

FUELOIL & OIL HEAT READER SERVICE
REPLY CARD APRIL
Mail Now—Card Expires June 30, 1954

Circle numbers of new product items on which you want more information:

E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11
E12	E13	E14	E15	E16	E17	E18	E19	E20	E21	
E22	E23	E24	E25	E26	E27	E28	E29	E30	E31	

ADVERTISEMENTS—Give page number and name of advertiser about whose products you want more information.

Page ..... **Advertiser** .....

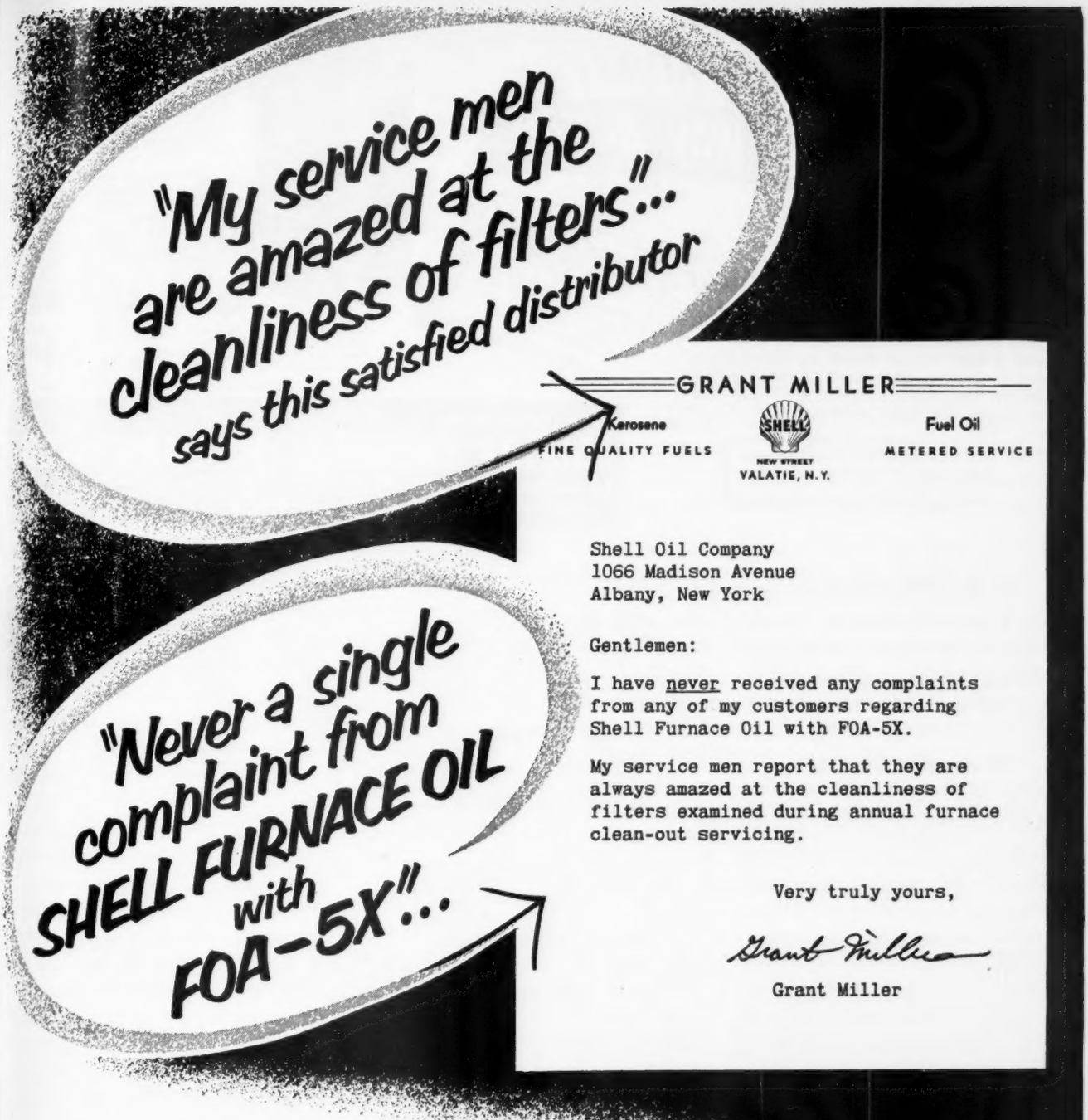
Page ..... **Advertiser** .....

Your Name .....

Company ..... **Position** .....

Address .....

Check Classification of principal dollar volume:
☐ **Fueloil Dealer** ☐ **Parts and Equipment Jobber** ☐ **Manufacturer** ☐ **Manufacturer Employee** ☐ **Manufacturers Rep.** ☐ **Oilheating Dealer** ☐ **Other**


"My service men are amazed at the cleanliness of filters"... says this satisfied distributor
GRANT MILLER
Kerosene
FINE QUALITY FUELS
SHELL
NEW STREET
VALATIE, N.Y.
Fuel Oil
METERED SERVICE
Shell Oil Company
1066 Madison Avenue
Albany, New York
Gentlemen:
I have never received any complaints from any of my customers regarding Shell Furnace Oil with FOA-5X.
My service men report that they are always amazed at the cleanliness of filters examined during annual furnace clean-out servicing.
Very truly yours,
Grant Miller
Grant Miller
"Never a single complaint from SHELL FURNACE OIL with FOA-5X"...

Here's the heating oil that keeps filters clean... keeps customers happy...keeps your service calls down

Shell Furnace Oil with FOA-5X virtually eliminates one of the main causes of frequent service calls—filter screen clogging. Dealer after dealer reports that service calls are fewer in number and cost; that customers get more dependable heat with this modern heating oil.

This shows how Shell Furnace Oil with FOA-5X brings a basic reduction in expense to dealers in fulfilling their annual oil burner service contracts.

SHELL

SHELL FURNACE OIL *with* FOA-5X

3 NEW Exclusive "Home-Run" FEATURES

PUT EMPIRE WAY AHEAD

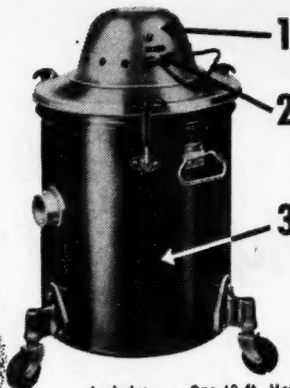
in the

FURNACE CLEANER League

Now Empire introduces three new exclusive features to decrease your operating costs and increase your profits. You can depend on any of Empire's four models for extra power, super-performance, beauty, light weight, durability and VALUE. Attachments available for wet and dry pick-up.

DEALERS NOTE—Several choice territories available. Write today for complete information.

When machine shuts off, baseball bounces and shakes dirt and soot loose from rayon bag.



1. New type motor, more powerful, better constructed, gives 70 inches water lift at hose end.
2. Extra electric outlet on top of machine for connecting drop light. No hunting for outlets and dragging lengths of wire across the cellar floor.
3. Amazing new Rayon Bag with "baseball" device. EXCLUSIVE on Empire Furnace Cleaners. Outlasts dozens of paper bags. Keeps machine at top efficiency. Available at extra cost.

Includes . . . One 10 ft. Heavy Duty Hose—One 30" Crevice Tool—One Bag Cage with Filter Bag—One Paper Filter.

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Rayon Bag, Baseball and Draw String . $3.75 extra.

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EMPIRE CHEMICAL PRODUCTS CO.

10 Longworth Street, Newark 2, N. J.

In Canada—KRESNO-STAMM, 506 Harbour St., Montreal 24.

Oilheating Patents

(*Begins on page 74*)

A stack 14 removes the exhaust gases.

Examples and test data are given in each of the patents.

Hydraulic Control

U. S. 2,662,542, issued Dec. 15, 1953 to Joseph A. Logan and George D. Robinson, and assigned to Gilbert & Barker Manufacturing Co., describes a control device for an oil burner used for house-heating service. These burners customarily have positive-acting fuel-supply pumps which have a pumping rate far in excess of that at which the fuel is consumed, the major part of the pumped fuel being by-passed.

The apparatus is shown in Figs. 4 and 5. In Fig. 4, the parts are shown in the positions which they occupy

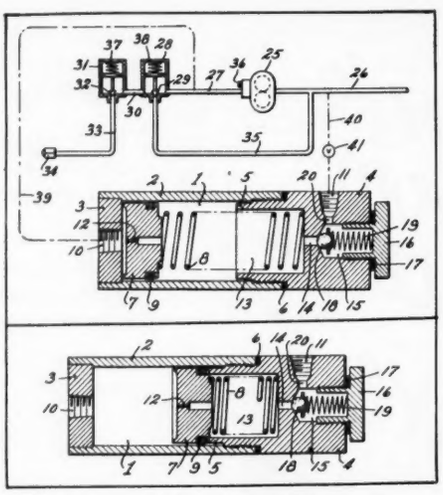

Figure 4 (above) and Figure 5

when the fuel pump is stopped; in Fig. 5, the parts are in the positions they occupy at the end of the time-delay interval on starting the pump.

The control device includes a cylinder 1 and a piston 7. A spring 8 tends to move the piston in the position shown in Fig. 4. Inlet and outlet ports 10 and 11 are provided. The piston has a small opening 12 through it. The pressure of the oil entering inlet 10 tends to push the piston into the position shown in Fig. 5. A ball valve 18 is held by a spring 19 against the valve seat.

A pump 25, supplied by pipe 26, forces oil to a casing 28 containing a by-pass valve 29, then to a casing 31 containing a cut-off valve 32, and to the pressure-atomizing nozzle 34 of the oil burner. The cut-off valve 32 is held closed by a spring until the pressure of the oil reaches a predetermined minimum value (say 90 psi). The by-pass valve 29 is held closed by a spring until the pressure of the oil reaches a predetermined maximum value (say 100 psi). The inlet 10 of the control device is connected (by the dashed

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"FACTORY REBUILT" Repair Exchange control service on all popular makes at regular manufacturers list prices and trade discounts.

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It's the hottest topic in town! International Economy® now offers the greatest line-up of oil, gas and coal-fired furnaces in its 112-year history! More models, *more* new features for your customers to choose from . . . *more* profitable advantages for you!

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Best part about Economy-engineered furnaces — once installed, they get along without you very well! This means fewer call-backs . . . bigger profits . . . customer satisfaction. Also — many International Economy furnaces are assembled and wired at the factory . . . making your job that much easier and faster.

Quality, performance, dependability *plus* unparalleled economy — no wonder everybody's talking about Economy! If you'd like to hear more . . .

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NEW ASSEMBLED OIL LO-BOYS

MODELS **OL-95**
OL-111
OL-85E

Look at these sales-clinching features:

- **Completely Assembled — Easier Installation.**
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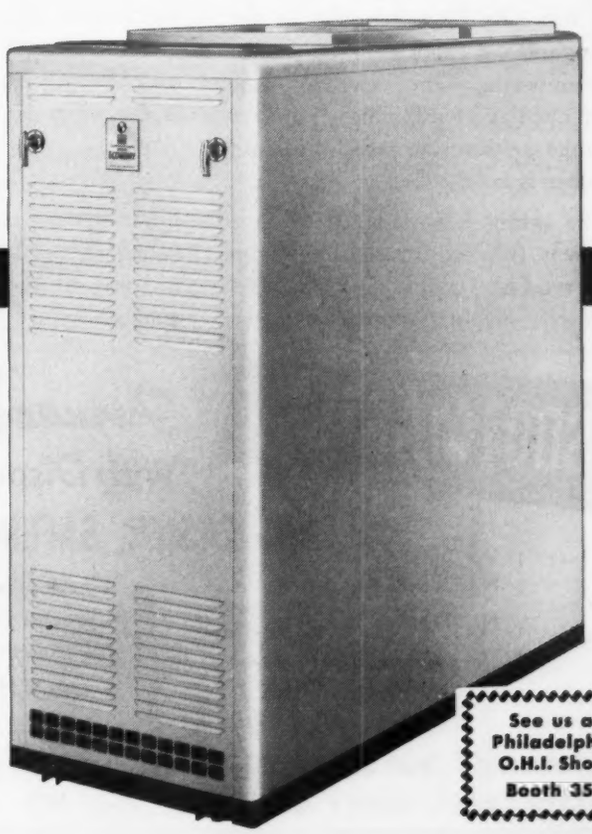
- **Handsome Heavy-Gauge Cabinet.**
- **OL-95 and OL-111 Available With or Without Vestibule.**
- **Three Assembled Sizes — 84,000 — 96,000 and 112,000 Btu. Output.**
- **10-Year Warranty on Heating Element, Combustion Chamber and Cabinet.**
- **Convertible to Gas.**



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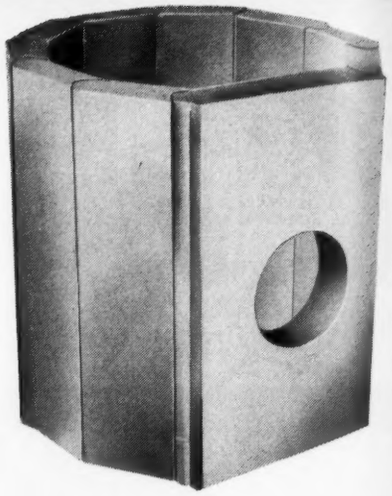
fueloil & oilheat

Announcing... **the *NEW* KOLBKAST UNIVERSAL**

Here's the finest in precast combustion chambers . . . the *new* Kolbkast Universal designed to give *your customers* peak performance at low cost.

Check these outstanding features:

- 16" high
- capacities from .75 gallons to 8 gallons
- fits most boilers and furnaces
- K-factor equal to insulating brick
- available as a complete package
- scientifically packed to prevent breakage



The Universal is available in two types . . . Kolbkast Insulating for temperatures to 2100° F and Super Duty Kolbkast for temperatures exceeding 2100° F.

Write or wire for additional details today.

KOLB REFRACTORIES CO., Meadow and Jackson Streets, Phila. 48, Pa.

KolbKast Insulated Chambers

line 39) to the pressure side of the oil pump. The outlet 11 is connected (by the dashed line 40) to the suction side of the oil pump.

The control device provides, by the small passage 12 in the piston, a by-pass between the inlet and outlet of the pump that is continuously open during normal operation. This by-pass has to be closed when air is being purged from the pump after a period when the oil supply has been exhausted. The check valve 18 automatically does this when air is being bled manually from plug 36 in the pump, and yet enables the by-pass to be open during normal operation. It is set to open at 25 psi, which is greater than the pressure the pump can build up when it is full of air.

The spring 8 is designed to have sufficient force to return the piston from the Fig. 5 to the Fig. 4 position when the oil pump stops. When the burner is not in operation, the control device will be in the position shown in Fig. 4. When the pump is started, it will very quickly build up a pressure of 25 psi and open check valve 18 and thus open the by-pass around the pump. The piston 7 will then move slowly to the right under pressure of the pumped liquid, until it reaches its Fig. 5 position. The passage 12 in the piston is not an important factor in delaying the building-up of the atomizing pressure,—the major factor being the expansible chamber afforded by the cylinder and piston. When the piston is arrested at its stop, the pressure rises abruptly from 25 psi to 100 psi at the pump discharge.

The by-pass 12 in the piston causes a quick drop in pressure when the power to the pump is cut off. Without such a by-pass, the pressure will diminish only as the speed of the pump diminishes.

Oilburner Course offered by Correspondence School

THE Eastern Correspondence School of Valley Stream, Long Island, N. Y., is now offering a new correspondence course entitled "Installation and Servicing of Domestic Oil Burners."

Recently approved by the New York State Education Department, the course consists of nineteen lessons, and was written by Robert Mitchell, president of the school, who is affiliated with Sid Harvey, Inc.

Cost of the course is less than $100. While students have up to one year to complete it, the lessons can be finished in less than six months. The entire curriculum is aimed at providing a thorough background in oilburning principles, problems, installations, servicing and trouble-shooting.

Further information may be obtained from Eastern Correspondence School, Box 272, Valley Stream, N. Y.

SOOTMASTER *Furnace Cleaner with Disposable Filter . . .*

CLEANS EASIER, SAFER, FASTER!

- ✓ No Outside Bag
- ✓ No Dust Bag to Empty
- ✓ Disposable Filter for easy emptying of container
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- ✓ Double Filter Protection
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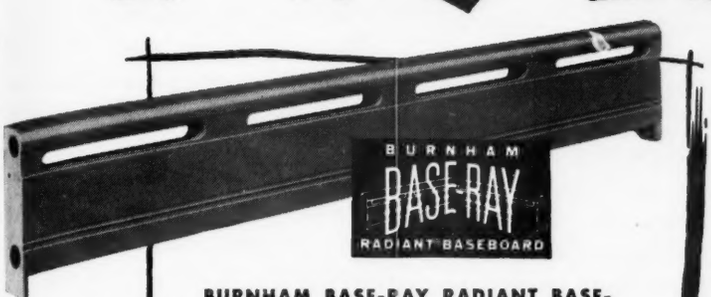
Interested? Want more details? Contact your jobber or write us today.

MASTER-CRAFT SUPPLY CO., INC. Dept. FO HAVERSTRAW, NEW YORK

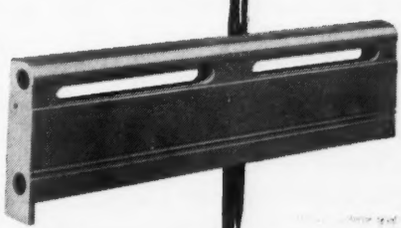
Selling IS EASIER...

WHEN YOU GIVE CUSTOMERS WHAT THEY



BURNHAM BASE-RAY RADIANT BASEBOARD gives true radiant heat; no false fronts or grilles, all sections fully water-backed. *Silent,* too! Only 7" high and 2" deep, BASE-RAY is the smallest, yet the most efficient of all baseboard units. This small size factor means BASE-RAY can fit inconspicuously into any room, save valuable space and contribute to smarter decor. None of these advantages will go unappreciated by the customer. Sturdy cast-iron construction, corrosion resistant, lasts a lifetime, quickly and simply installed.

NEW 18-INCH LEFT-END BASE-RAY SECTION. Ready for immediate delivery, this 18-inch, left-end BASE-RAY section permits furnishing assemblies in increments of 6 inches. Write for new rating data.



... And they *want* the Magic of Radiant Hot Water Heating as delivered by BASE-RAY*! They've been wanting (and getting) it at the rate of thousands of installations each year, since Burnham pioneered the radiant baseboard idea eight years ago! The customer doesn't have to know a thing about engineering to appreciate BASE-RAY! Such features as BASE-RAY's full *water backing* and rugged *cast-iron construction* speak for themselves. They mean solid comfort and lifetime performance. Just explain it to him — he'll do the rest!

*Reg U.S. Pat. Off.

NEW CORNER PLATE *(below).* This new extended inverted corner plate for BASE-RAY is similar to the present corner plate but has been extended on each side so that it measures 10⅝ inches from the corner to each end. This item, plus new 18-inch left-end section, enables you to cover two or three walls *without* the use of the baseboard extension.

BURNHAM BOILERS AND BASE-RAY ARE THE PERFECT HEATING TEAM—THEY WEAR LIKE IRON BECAUSE THEY'RE MADE OF IRON

SEE OUR EXHIBIT AT BOOTH 459-461
20TH NAT'L OIL HEAT EXPOSITION

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FIRST IN THE MANUFACTURE OF BASEBOARD HEATING

Burnham RADIANT HEATING SINCE 1873

Burnham Corporation FO-44
Irvington, New York

Please send me full information and ratings guide on BASE-RAY.

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STOP giving away your ductwork profits!

According to a recent FUEL OIL and OIL HEAT survey, 22% of all oil heating dealers plan to add their own sheet metal shops. This makes sense because you'll have absolute control over the quality and timing of ductwork installations. You'll SAVE a big slice of PROFITS on all your warm air and summer cooling jobs. Here's how to start.

WEBCO *The Portable Sheet Metal Bending Brake*

You can make ducts and fittings easily and quickly without hammering work. You can turn out dependable, precision work on this inexpensive top-quality sheet metal bending brake. Let us show you!

CALL OR WRITE

HALLMOR INC. — McMurray Road, Bridgeville, Pa.

Names in the News

(*Begins on page 6*)

Duane W. Rouse has been appointed manager, sales engineering, Toridheet Division, Cleveland Steel Products Corp., Cleveland. He will continue to supervise a training program for dealers' service and installation personnel.

Richard E. Sweney has been appointed plant manager of the Michigan City, Ind., plant of the C. A. Dunham Co., Chicago. His assistant will be *William F. Katona*. Both men worked together at the Pullman Standard Car Manufacturing Co.

Wallace D. Boone has been appointed vice president of OPW Corp., Cincinnati, O. He has been with the company since 1949, and has been chief engineer in charge of product development, research, testing and design since 1951.

Curtis F. Falldine and *Carl J. Anderson* have been elected treasurer and secretary, Acme Electric Corp., Cuba, N. Y. Falldine joined Acme in 1953 as controller, prior to that he had been vice president of the Crescent Tool Co. Anderson joined the company in 1944 as supervisor of the payroll department; in 1946 he was elected assistant treasurer.

John Walencis has been elected vice president and general manager of Sid Harvey of Virginia, Inc., Arlington, Va. It was announced at the same time that *Edna Loeffler* would be assistant treasurer and *Dorothea Lutz* would be assistant secretary of Sid Harvey, Inc., Valley Stream, N. Y.

W. R. Huber has been named general manager of Public Relations for Gulf Oil Corp., Pittsburgh. Joining Gulf in 1953 as manager of advertising and sales promotion, Huber was made general manager of retail marketing in 1949, a position he has held until his recent appointment. During the past six years, Huber has been active in Public Relations work for the American Petroleum Institute.

Profits in Cooling

(*Begins on page 68*)

are several standard units available for the 2 ton and 3 ton residential package cooling units. To keep the dimensions as small as possible these air-cooled coil assemblies are equipped with one or more motor-driven fans that blow air over the coil surface.

Manufacturers' published rating tables make the air-cooled condenser sizing problem extremely simple. Knowing the maximum average air temperature to be experienced at the unit location, tables show the tonnage for condenser as well as head pressure. The compressor and its motor can then be properly matched.

Location for this equipment can sometimes offer interesting problems. Any time that an interior spot is chosen, provision must be made for substantial ventilation. Always when an out-door site is selected, the contractor must remember that the owner and his neighbors object to loud sleep-disturbing noises. Then too, it is best to avoid sun-exposed locations in

McCORKLE CONTROLS for Vaporizing Oil Burners *are designed to* **GIVE** *— not require* **SERVICE**

Less service means greater customer satisfaction — increased profits — more new business

- Patented dual blade bi-metal assembly — insures trouble-free operation — supplies a wide margin of extra power.
- More rapid heat transmission.
- Adjustable snap acting Micro-switch.
- Heavier, more rugged construction.

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THE SMOKE-ROD TEST PROVES

Oran's New Dual-Air Burner is SUPER CLEAN

THIS ROD MEETS COMMERCIAL STANDARDS REQUIREMENTS

This is a 6% smoke rod, which means there is a 94% build-up of carbon on a glass rod inserted in the smoke pipe of an oil furnace with ordinary vaporizing burner for 20 minutes, at .06 draft. *This is the acceptable standard which all such burners must achieve to meet commercial standards.*

THIS ROD MEETS ORAN REQUIREMENTS

Here is the same test performed in an Oran Model 0-70DA oil-fired floor furnace with *dual-air vaporizing burner.* Note that smoke rod is super clean, with perfect light transmission. *This test was made at .02 draft, a 67% reduction in draft requirement!*

CUTAWAY DRAWING OF ORAN DUAL-AIR VAPORIZING BURNER

ALL ORAN Shallo-Well, oil-fired floor furnaces have the REVOLUTIONARY, CLEAN-BURNING, DUAL-AIR BURNER

Here's the authoritative LABORATORY TESTED proof that Oran Shallo-Well, oil-fired floor furnaces with the sensational, new Dual-Air vaporizing burner, burn clean and soot-free, EVEN AT 67% DRAFT REDUCTION. After years of extensive research, Oran now brings you an oil-fired unit that matches the cleanliness of natural gas! Let us send you the complete story on the revolutionary, new Dual-Air burner, and why it makes Oran the unquestioned leader in oil-fired floor furnaces. You can't afford to let another day pass without investigating the Oran Shallo-Well line—your magic key to floor furnace profits! *Write, wire or phone us TODAY!*

UNDERWRITERS' LISTED

CUTAWAY DRAWING OF ORAN MODEL 0-70 DA SUPER, RATED AT 75,000 BTU. OTHER MODELS AT 50,000 AND 65,000 BTU.

ORAN COMPANY
2210 S. Third Street, Columbus 7, Ohio

view of the heating effect on the condenser and surroundings which may raise the air temperature above normal.

Technically, but not always in practice, the evaporative type condenser offers the most to offset its higher initial cost. The unit as mentioned above is similar to an air-cooled condenser, and gets the benefit of partial heat dissipation by mechanically circulating air over its coil surface. The size of the coil and fan are reduced because, by adding a water spray, advantage may be taken of the high cooling effect available because of latent heat of vaporization of water.

Therefore the evaporative type condenser uses relatively very little water, even when the design allows some to be wasted rather than to be pumped and re-circulated. The manufacturers' rating tables will probably show better than 90% saving and a somewhat lower head pressure which in turn keeps the compressor power consumption low. Normal practice, of course, calls for rating and selecting this type of condenser at the expected maximum wet bulb condition, and this is not at the same time when sun and high temperature place the most heat load on the compressor. At such time the evaporative condenser can be expected to hold the compressor at more reasonable head pressure since the wet bulb condition will be lower than the point at which the units were selected.

Unfortunately it isn't possible to follow any short rule-of-thumb to get reliable information as to which type of condenser is the most desirable. The important matters which all have an important bearing on this point are the local codes and availabilty of water supply, the relative cost figures for both water and electricity, the amount of out-door space for locating heat disposing units and the value of first cost or operating expense. In a particular territory there will be little variation, and only a few estimates need be prepared to prove the characteristics of all jobs in the area. The steps to be made will follow a pattern such as this:

1) Establish from authorities at water supply source what the prevailing restrictions are and may be expected to be. Get figures on water cost, usually quoted per thousand cubic feet, and convert each 1000 cubic feet to 7500 gallons.

2) Estimate the total average number of hours that system will be in operation during the cooling season. This will vary with climate and size equipment selected for a particular installation. It is best to consult with experienced engineers rather than to guess. The answer might be close to 1000 hours or it could easily be double this amount.

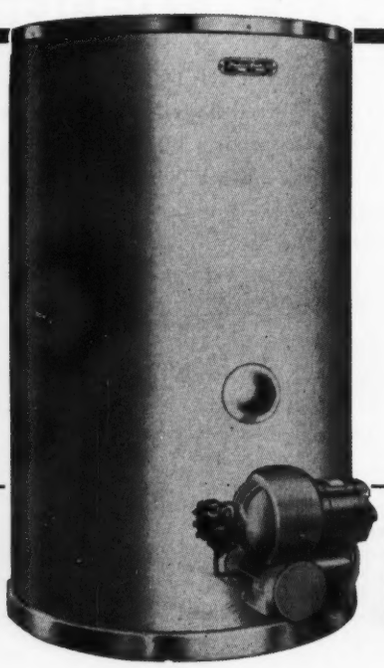
3) Select a set of air-cooled, then water-cooled, and then evaporative-cooled equipment for either a two- or three-ton job. Then calculate the total power and water costs per season, and price the different systems on an average installed basis. Something extra for maintenance should be allowed when water is used outside where temperatures below freezing are normal.

While the above comparison is merely an estimate, the actual performance can be predicted with reasonable accuracy as long as the figures for each component are carefully selected. Then the analysis will be sound

Percolating Progress Brings You Stimulating Profits!

SHEPHARD
Percolating Action
HOT WATER HEATERS AND BOILERS

Your Answer to the Small Home Market



Be two steps ahead of competition. Sell a heater and a heating principle that is two steps ahead of the ordinary fire-to-boiler contact-type. Sell The SHEPHARD Percolating Action for instant heat pick-up . . . a definite step ahead in heating economy and efficiency. Prevents lime, scale and sediment collection. Keeps boiler continually clean. Sturdy, arc welded construction from heavy boiler plate and tubes. Thoroughly galvanized inside and out. Furnished with any desired color (blue is standard) with chromium trim.

Boilers have 2 inch wool insulation.
FURTHER DETAILS FURNISHED ON REQUEST.

Shephard HEATER COMPANY
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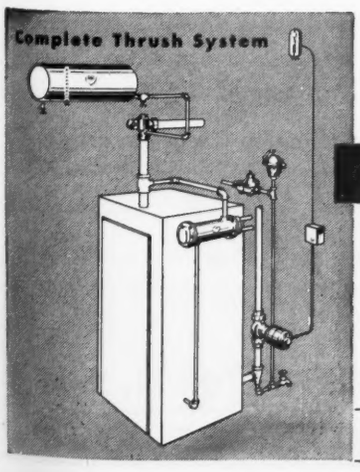
LOOK FOR THE Vacuum Breaker *

WHEN YOU BUY PRESSURE TANKS

SAVE TIME! Save labor! Reduce service bills! Please your customers. How? Just insist on genuine Thrush Pressure Tanks for the hot water heating installations you make. Only Thrush Pressure Tanks have the built-in Vacuum Breaker which enables you to drain a waterlogged tank completely in just a few minutes. Best of all, this feature costs no more!

This is only one of the many advantages you can give your customers and yourself when you install Thrush equipment. Ask your wholesaler about it or use the coupon below.



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Department C-4, Peru, Indiana

Your built-in Vacuum Breaker feature of Thrush Pressure Tanks sounds valuable to us. Please send literature describing it.

NAME _____

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and a convincing presentation can be made to the customer.

The final phase of the cooling cycle, the cycling coil, needs but little mention. Manufacturers have devoted great attention to design details and to construction features, but there is little responsibility left for the installing contractor. The experienced manufacturers provide detailed rating tables which are most helpful in leading to a proper selection for the work. The coil capacity is naturally affected by the difference in temperature of refrigerant in its tubes and air over its surface. Air quantity or velocity can be important. For all new jobs as well as revisions to old heating systems, it is important to carefully select air quantities and figure on cooling coils of proper face area to allow reasonable velocity, pressure drop and noise level. Fan performance will have to be checked to be certain that motor and drive are the right size to accommodate the cooling loads as well as the heating loads.

Whereas it is easier to bury overhead and engineering time in a large estimate for cooling, profit will only materialize if the cost for engineering can be greatly reduced. The manufacturers who are interested in today's mass residential market have every reason to want to help with safe time-savers which they know from experience will provide the desirable result.

The article which is to follow will discuss some of the more important steps in analyzing the loads and arriving at the maximum and minimum capacities that must be used. With a general understanding of some of the theory and familiarity with load-estimating methods making use of some short cuts, the contractor can minimize the normal overhead for this type of operation. Then residential air conditioning becomes more attractive as it becomes more profitable.

❖

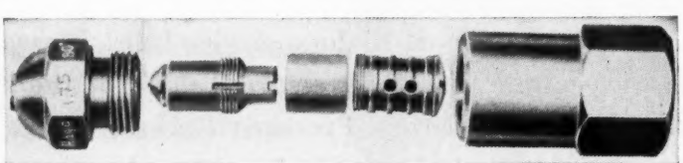
Wallace J. Hoeing has been made sales manager of the Airconditioning Division at Servel, Inc., Evansville, Ind. He fills the position recently made vacant by the promotion of *H. R. Nielsen* to manager of the division.

Detroit Controls

(*Begins on page 57*)

No auxiliary transformer is needed for powering the thermostat's parallel-type heater when the thermostat is connected to a Detroit stack control, of course. The green thermostat-circuit terminal of the stack control gives the thermostat heater current from the low-voltage transformer in the stack control, as a study of the accompanying wiring diagram brings out. Connected to a Detroit relay-transformer, the thermostat also needs no auxiliary transformer to provide current for its heater. A relay-transformer is used, of course, to permit this low-voltage thermostat to start and stop a line-voltage motor—such as the motor of a hot-water circulator.

The Detroit line of controls includes a full complement of limit controls. For steam boilers, there's the 450BA1 pressure control and the 450BC1 vapor control. For forced-air jobs, the line includes both helix-type and hydraulic-type controls. An immersion helix-type control, the 655 is made for hot-



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ACCURATE CAPACITY RATINGS AND SPRAY ANGLES

ARE THE NATURAL RESULTS OF OUR

PRECISION WORKMANSHIP

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PRECISION MEANS *Hago!*

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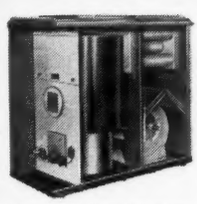
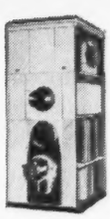
More FEATURES to sell! More PROFITS per sale!

WITH Luxaire®

now more complete than ever!

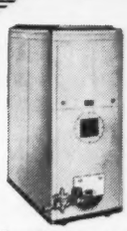


Winter Air Conditioning Units approved for either Gas or Oil

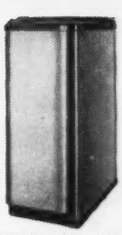


Counterflow Units Approved for either Gas or Oil

Utility Units approved for either Gas or Oil



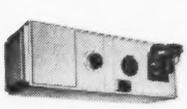
Gravity Furnaces Approved for either Gas or Oil



"Add-On" Vestibule for Basement Units

Year-'Round Air Conditioners Gas or Oil 2 and 3 Ton Cooling

"Add-On" Summer Cooling Units 2-3 and 5 Ton



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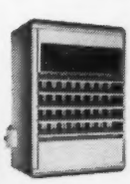

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Luxaire offers "extra value" for you and your customer, for every heating dollar invested.

With Luxaire you have the largest — the most complete — most versatile and outstanding line of heating and air conditioning equipment!

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ELECTRIC IGNITION LEADERSHIP — First, best known, most successful in entire vaporizing field!

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NO MOVING PARTS — No motors, no blowers!

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HEAT EVEN IF ELECTRIC POWER FAILS!

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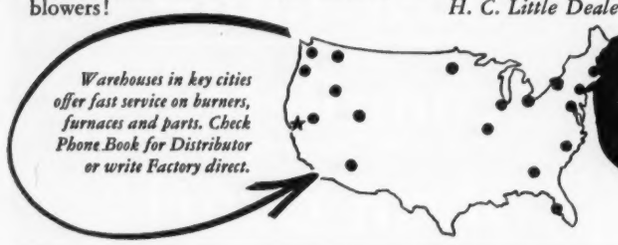

H.C. Little Burner Company, Inc.

Head Office and Factory: San Rafael, California

H. C. Little Burner Co., Inc., San Rafael, Calif.
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water heating systems, etc.—also there's the CA-666 solid-charge hot-water control, single-throw direct-acting, described as outstanding in speed of response. Brand new in the Detroit line is the CA666DT water temperature control, single-pole, double-throw type suitable for line-voltage loads (naturally also suitable for low-voltage circuits) that's intended to simplify things and cut costs on forced hot-water jobs needing reverse-acting controls and high-limit or operating controls. This new CA-666DT (the DT stand for double-throw) amounts to two controls in one.

To couple performance to design features and construction, as is usual in preparing these articlese on controls we asked enthusiasts for these controls what they found best in them. Resultant "rave points" for the Detroit 411 CH room thermostat, featuring "timed cycling," included:

1. Modern, pleasing design
2. Accurate temperature control
3. Parallel compensating heater; one heater is used for all jobs
4. When thermostat is being installed, wiring connections can be made without removing its cover
5. Exceedingly easy to adjust or calibrate; has three adjusting screws, each serving a distinct function
6. Can be adjusted precisely without the help of test-light or ear-phone
7. Provides timed cycle that fits characteristics of any installation
8. Snap action of contacts gives clean, positive make-and-break action
9. Contacts of commercial silver
10. Contacts are self-wiping type; this assures positive contacting, lengthens life of thermostat, reduces greatly the need for cleaning contacts.

Similarly the following points of glory were given regarding the Detroit CA-701 stack control, when enthusiasts for this control were asked specifically what they liked about it:

1. Rugged construction
2. Ample space for connecting wires
3. Starting and running protection against low line-voltage
4. Safety switch assembly fully compensated for ambient temperature
5. Adaptable to jobs having unusually low stack temperatures
6. Extremely sensitive to increase in stack temperature after burner starts; responds to a stack temperature increase of only 20° F., then shunts current around safety switch heater
7. A 100° F. increase in stack temperature shifts this stack control fully from its cold-start to normal-run condition
8. Control is easily put in step for starting (starting contact operated by bimetal helix can be closed easily)
9. Adjustable ventilation slot pro-

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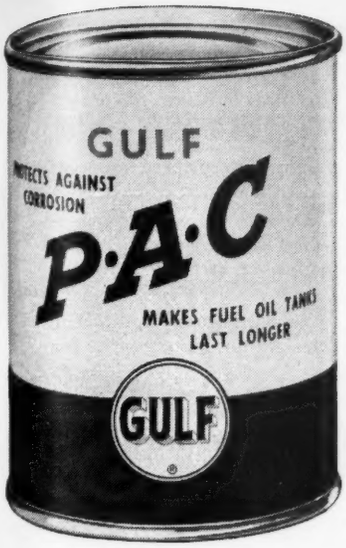

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Cap. in Gals.	Gauge	Size	Cap. in Gals.	Gauge	Size
275	14 or 12	27 x 44 x 60	285	14 or 12	38 x 60
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			1000	7	48 x 130

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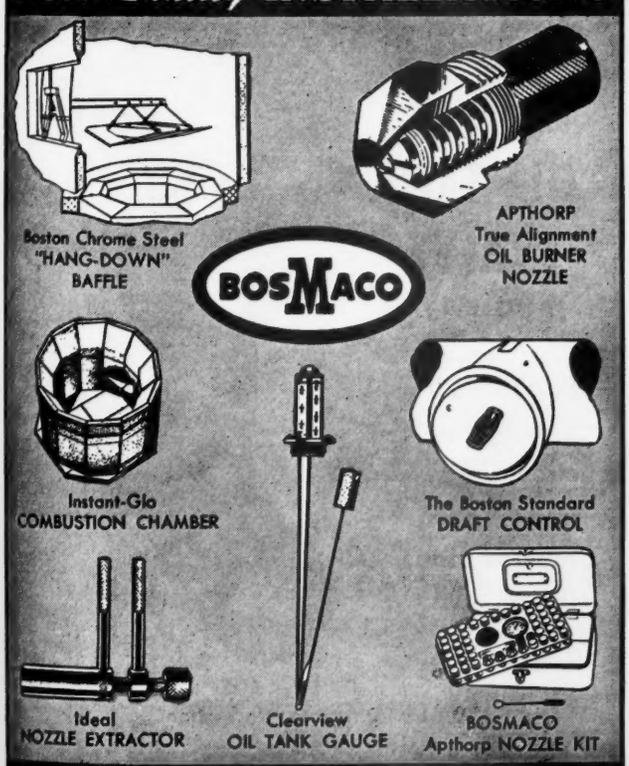

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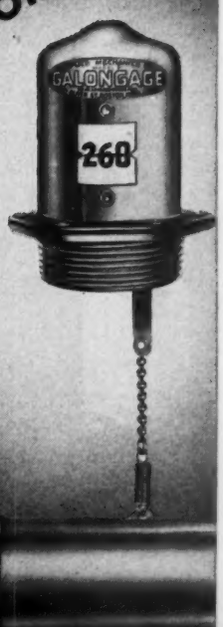

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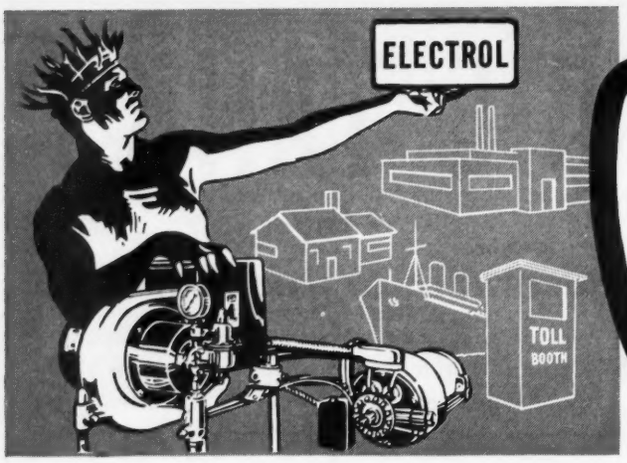

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10. Helix good for stack temperatures up to 1000° F.

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12. Can be used with thermostats having parallel-type heaters and with thermostats having series-type heaters (green terminal is not used)

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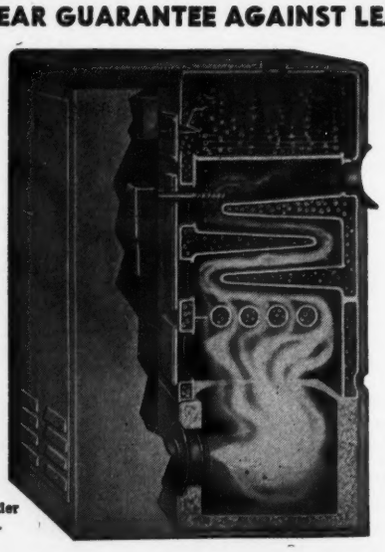

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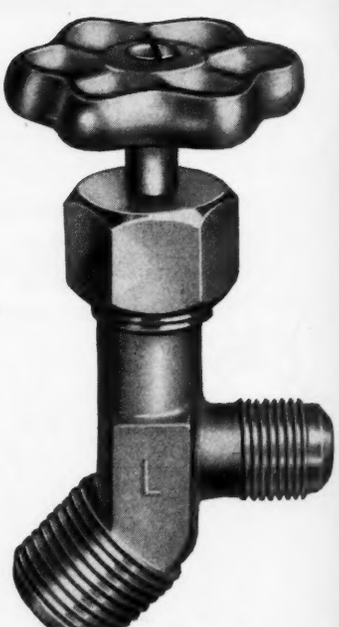

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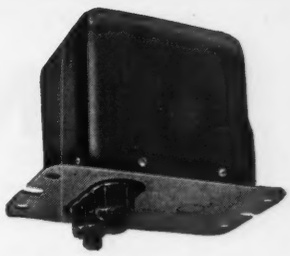

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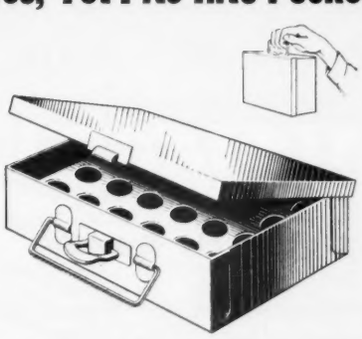

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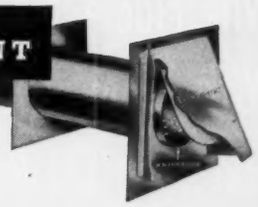

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❖

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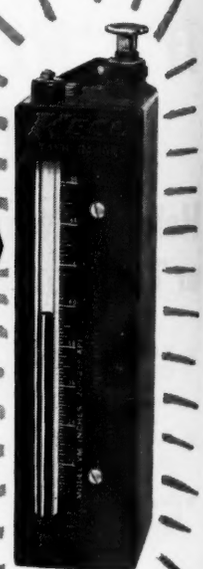

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How Lightweight Refractories Reduce Soot and Odor

"But don't you get a lot of soot from oil burners?"

You've probably run into this question more than once, and with today's tough competition from other fuels, getting and holding an oil account is no cinch. Today's home owner knows there is such a thing as clean, odorless heat—and he doesn't want any soot or smell from his oil-fired conversion job.

What does this have to do with refractories? Just this: The lighter the firebrick you install, the higher the flame temperature will be. This is because lightweight insulating firebrick come up to operating temperature on the surface in a fraction of the time it takes to heat ordinary firebrick — in effect, they bounce the heat back into the firebox, resulting in a higher flame temperature. This means more complete combustion—clean, odorless heat.

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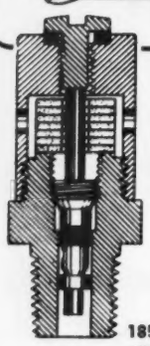

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Crise Controls

(*Begins on page 59*)

operating conditions. Each "furnace" is equipped with a tape recorder that makes a record, visual and permanent, of the performance of the control being tested.

The snap-acting switches in Crise controls were found to be particularly interesting during studies made of them in preparation for writing this article. Exceedingly small and effective pieces of metal gain the snap-acting feature. Crise factory men emphasize that their organization is one of the largest manufacturers of precision switch devices—it makes Acro and Mu switches—hence can be expected to handle exceptionally well the switch-problem aspect of manufacturing oilheating controls.

A top staff of engineers and designers not new to control devices is one of the Crise assets. These men have a background of 17 years' experience in developing mechanisms for automatic control of temperatures, for Crise became famous for coal-fired plant controls years ago—as was pointed out earlier in this article.

As companions to the furnace controls described here and shown in accompanying photographs, Crise offers a set of hot-water system controls of similar appearance and design motif. One is the FOL-50 control—surface or strap-on type; the other is the FOL-70—immersion type.

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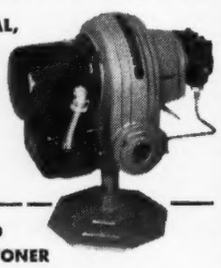

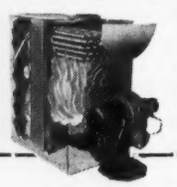

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Available in four models: Low Boy, Suspended Unit, Hi Boy, Counterflow. Factory assembled and shipped complete.

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Discharges waste water from laundry tubs, washing machines and other fixtures or appliances located below sewer outlets. For draining water tanks and swimming pools, circulating water in cooling systems. All bronze construction, dynamically balanced impeller, rotary type seal.

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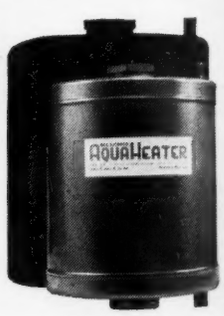

A sealed air column in a unique cone-shaped copper coil effectively reduces water hammer. In addition to this the AquaHeater has

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Finned Copper tubing plus AquaHeater's famed Counter Flow principle enables the AllCopper AquaHeater to produce more hot water, faster, notwithstanding its smaller size and lighter weight.

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COMBUSTION FACTORS

CO. INDICATOR
TEMPERATURE
DRAFT GAUGE

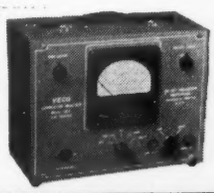
ON 1 DIAL - IN SECONDS!

MAKE MONEY! by locating the cause of combustion trouble, FAST!—with the VECO all-electric, Complete COMBUSTION ANALYZER. Establish a reputation for operating with scientific accuracy and thoroughness!

PERMANENT, ACCURATE CALIBRATION:

Analyzing elements are SEALED IN GLASS —no old-style, bare-wire filaments to clog.

EASILY operated—NO complicated set-up. Dry-cell battery powered—NO messy chemicals. Portable, Compact, Light, Rugged. Will pay for itself in a short time.



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Model 140-A for Domestic use
Model 140-C for Industrial use
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Manufacturers of:
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ELECTRONIC AND THERMAL CONTROL INSTRUMENTS

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features . . .

- Glass or Metal Bowls
- With or Without Valves
- 17 Models
- Exclusive CHEMISTONE Element

Modern Engineering and Styling combine to make Klemm Fuel Oil Filters appealing to both the Heating Contractor AND his patrons. A choice of models to meet *every* filtering requirement . . . and each featuring the exclusive Klemm CHEMISTONE Element. Ask your jobber for details . . . or write direct.

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DIVISION OF
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OIL BURNER SERVICE PARTS AND TOOLS OPEN THE DOOR TO MORE PROFITABLE OIL BURNER SERVICING

- Fuel unit and relay service parts, bellows, nozzle-ports, seals, helixes, elements, etc.
- A complete line of SUPERSEAL gaskets for all fuel units, filters and fill boxes.
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The high quality of HYDROVALVE products, precision made by skilled craftsmen is recognized throughout the oil burner industry.

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BUckminster 4-1330

NOW— a bungle-proof barrel bung wrench

...by Buckeye

Barrel bungs come out quickly and easily with Buckeye's compact and versatile No. 663 Barrel Bung Wrench. It saves time and trouble because it fits all commonly used types of bungs or drum plugs, and is also designed to remove seal caps. Heavy cast steel construction and rust-proof plating insure strength and durability. Send coupon for details.

BUCKEYE IRON & BRASS WORKS, Dept. F, Box 883, Dayton 1, Ohio
Please send details on Buckeye No. 663 Barrel Bung Wrench.

NAME_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

Installations were 823,365

(*Begins on page 73*)

oilburner replacements and that is holding us at about a fixed level on our replacement sales. It becomes more important than ever that the oil industry make a special effort to sell a replacement on every job that has grown old enough to require a lot of service because, of course, those are the easiest pickings for our gas competitors.

The industry still finds its greatest strength along the Atlantic seaboard with 63% of all installations in the New England, Mid-Atlantic and South Atlantic regions. If we add the Pacific states, we are up to 71% in seaboard areas where water transportation helps hold down the price of fueloil.

❖

Panel rates Preferences for Heating & Airconditioning

REPORT NO. 33 of the Reader-Consumer Panel of *The American Home* magazine includes reports on the panel's preference for heating and airconditioning systems. The panel is composed of 2,000 subscribers to the magazine, representing a cross-section of its readers in all 48 states. Nearly 80% own their own homes.

Panel members, approximately 71% of them, consider efficiency of operation the most important single feature in the selection of a heating system. Next in importance they rate economy, 30.6%; fuel used, 19.1%. A little better than a third of them presently use forced warm air heating systems, 11.7% have gravity warm air systems, 10% use forced hot water, 7.9% steam and 5.1% gravity hot water heating.

Baseboard registers and wall registers are one-two in preference for type of heating outlets, 23.2% and 17.7% respectively, followed by: built-in radiators, 14.4%; baseboard panel, 13.0%, water coils in floor and ceiling 11.0%; floor registers, 6.4%; perimeter heating, 3.7%; wall panels, 3.4%; convector, 3.1%; radiators, 2.4%.

When asked about the type of heating they would select if building or modernizing, 47.7% chose warm air heating, 30.9% would specify hot water heating and 3.9% wanted steam heating.

Principal reasons for preferring warm air heating were, in order, more economical, more satisfactory from past experience, cleaner, faster heat and efficient. Hot water heating was preferred for these reasons: even, consistent heat, cleaner, more healthy, more economical and more satisfactory.

Better than 1/6th of the respondents would contact a heating dealer to purchase heating equipment, about 12% would rely upon a heating contractor and 11.6% would buy from a furnace company dealer. The rest were divided among plumbing outlets, electrical appliance dealers, utilities and mail order outlets.

Nearly 15.0% of the panel members have some type of airconditioning in their homes today and another 30% plan to have it soon. Of those planning to buy, 61.9% will purchase central units, 38.1% want room units. The panel considers uniform comfort and cost of operation the two most important factors in buying residential airconditioning.

Get Money-Making Facts On

KENT *Double Suction*

FURNACE AND BOILER CLEANERS

Powerful Kent Cleaners give you *double* power—double suction from double fans emptying into double dustbags. Inside bags... low RPM and other Kent features end work stoppages, save repair costs. *Good tools are the cheapest.*

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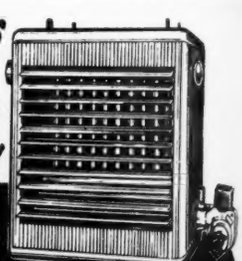
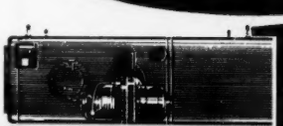
KENT CO., INC., 434 Canal St., Rome, N.Y.
Send immediately all facts on money-making Kent Cleaners.
Firm Name.....
My Name.....
Address.....
City..... State.....

3 SPECIFIC SOLUTIONS TO 3 SPECIFIC HEATING PROBLEMS
Only DELTA Makes All 3!

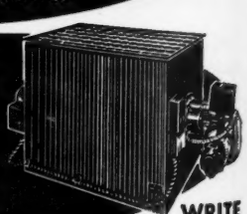


DELTA DIRECT-FIRED OIL UNIT HEATER
For lowest cost industrial heating. Ideal for factories, warehouses, commercial buildings, and locations requiring high velocity air delivery.



DELTA SUSPENDED-HORIZONTAL FURNACE
Especially shallow for narrow crawl spaces and attics. Larger models for offices, partitioned spaces, stores, gas stations.

DELTA GUN-TYPE FLOOR-O-LEVEL FURNACE
Provides an extremely effective, yet extremely economical central heating system for small cellarless homes.



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fueloil & oil heat's

BUYER'S GUIDE AND INDUSTRY DIRECTORY

SECTION OF APRIL 1954 ISSUE

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by

HEATING PUBLISHERS, INC.
2 West 45th Street, New York 36, N. Y.

MANUFACTURERS OF
Oilburners, Oilburner and Heating Accessories, Equipment and Supplies

(Part I. Listed by types of equipment)

Airconditioning

Central Cooling Unit

Addison Products Co., Addison, Mich.
Air Conditioning Engineering Co., Cambridge, Mass.
Airtemp Div., Dayton, Ohio
American Furnace Co., St. Louis, Mo.
Armstrong Furnace Corp., Columbus, Ohio
Automatic Firing Corp., St. Louis, Mo.
Barkow Mfg. Co., Inc., A. G., Milwaukee, Wisc.
Besser Metal Products Corp., Charlotte, N. C.
Brunner Mfg. Co., Utica, N. Y.
Bryant Heater Div., Cleveland, Ohio
Carrier Corp., Syracuse, N. Y.
Coleman Co., Inc., Wichita, Kans.
Conco Eng. Works, Mendota, Ill.
Cool-ette Inc., Detroit, Mich.
Farquhar Furnace Co., Wilmington, Ohio
Frigidaire Div., Dayton, Ohio
Front Rank Mfg. Co., St. Louis, Mo.
General Electric Co., Bloomfield, N. J.
Henry Furnace Co., Medina, Ohio
Hupp Corp., Cleveland, Ohio
Iron Fireman Mfg. Co., Cleveland, Ohio
Kennard Corp., St. Louis, Mo.
Lennox Furnace Co., Marshalltown, Ia.
Lipman Refrigeration Div., Beloit, Wisc.
Majestic Co., Huntington, Ind.
Morrison Steel Products, Inc., Buffalo, N. Y.
Mueller Furnace Co., L. J., Milwaukee, Wisc.
Niagara Furnace Div., Cleveland, Ohio
Norge Heat Div., Kalamazoo, Mich.
Olsen Mfg. Co., C. A., Elyria, Ohio
Patten Co., J. V., Sycamore, Ill.
Peerless Furnace & Fdry. Co., Indianapolis, Ind.
Perfection Stove Co., Cleveland, Ohio
Primor Products Inc., Adrian, Mich.
Refrigeration Economics Co., Canton, Ohio
Remington Corp., Auburn, N. Y.
Round Oak Co., Dowagiac, Mich.
Schnacke, Inc., Evansville, Ind.
Sunbeam Air Conditioner Div., Elyria, Ohio
Surface Combustion Corp., Toledo, Ohio
Thatcher Furnace Co., Garwood, N. J.
Trane Co., LaCrosse, Wisc.
Typhoon Air Conditioning Co., Inc., Brooklyn, N. Y.
Union Asbestos & Rubber Co., Chicago, Ill.
U. S. Air Conditioning Corp., Minneapolis, Minn.
U. S. Machine Div., Lebanon, Ind.
Waterman-Waterbury Co., Minneapolis, Minn.
Westinghouse Electric Corp., Sturtevant Div., Boston, Mass.
Williams Div., Bloomington, Ill.
Williamson Heater Co., Cincinnati, Ohio
Worthington Corp., Harrison, N. J.
York Corp., York, Pa.
York-Shipley, Inc., York, Pa.
Yorktowne Machine Co., York, Pa.
Young Radiator Co., Racine, Wisc.

Combination Heating-Cooling Units

Air Conditioning Engineering Co., Cambridge, Mass.
Airtemp Div., Dayton, Ohio
American Furnace Co., St. Louis, Mo.
Besser Metal Products Corp., Charlotte, N. C.
Bryant Heater Div., Cleveland, Ohio
Carrier Corp., Syracuse, N. Y.
Coleman Co., Wichita, Kans.
Delco Appliance Div., Rochester, N. Y.
Delta Htg. Corp., Trenton, N. J.
Farquhar Furnace Co., Wilmington, Ohio
Front Rank Furnace Co., St. Louis, Mo.
General Electric Co., Bloomfield, N. J.
Henry Furnace Co., Medina, Ohio
Iron Fireman Mfg. Co., Cleveland, Ohio
Johnson Co., S. T., Oakland, Calif.
Lennox Furnace Co., Marshalltown, Ia.
Majestic Co., Huntington, Ind.
Meyer Furnace Co., Peoria, Ill.
Mueller Furnace Co., L. J., Milwaukee, Wisc.
Niagara Blower Co., New York, N. Y.
Olsen Mfg. Co., C. A., Elyria, Ohio
Paragon Oil Burner Corp., Brooklyn, N. Y.
Peerless Furnace & Fdry. Corp., Indianapolis, Ind.
Perfection Stove Co., Cleveland, Ohio
Round Oak Co., Dowagiac, Mich.
Servel, Inc., Evansville 20, Ind.
Skinner Heating & Ventilating Co., St. Louis, Mo.
Surface Combustion Corp., Toledo, Ohio
Syncromatic Corp., Milwaukee, Wisc.
Thatcher Furnace Co., Garwood, N. J.
Typhoon Air Conditioning Co., Inc., Brooklyn, N. Y.
Union Asbestos & Rubber Co., Chicago, Ill.
U. S. Radiator Corp., Detroit, Mich.
Waterman-Waterbury Co., Minneapolis, Minn.
Westinghouse Electric Co., Sturtevant Div., Boston, Mass.
York Corp., York, Pa.
York-Shipley, Inc., York, Pa.

Benches, Work

Fold-Away Type

Handi-Eqpt. Co., Racine, Wisc.

Boiler Accessories

Automatic door closer

Falz Mfg., St. Paul 4, Minn.
Leisur-Maid Mfg. Corp., Grand Rapids, Mich.

Fittings

Barco Mfg. Co., Barrington, Ill.
Bell & Gossett Co., Morton Grove, Ill.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Chase Brass & Copper Co., Waterbury 20, Conn.
Crane Co., Chicago 40, Ill.
Elmira Steel Co., Brooklyn, N. Y.
Ernst Water Column & Gage Co., Livingston, N. J.
Grinnel Co., Inc., Providence 1, R. I.

Insulation

Armstrong Cork Co., Lancaster, Pa.
Eagle-Picher Co., The, Cincinnati 1, Ohio
Federal Boiler Co., Inc., Midland Park, N. J.
Gem Clay Forming Co., The, Sebring, Ohio
Johns-Manville Corp., New York 16, N. Y.
Mexico Refractories Co., Mexico, Mo.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Refractory & Insulation Corp., Port Kennedy, Pa.
Sall Mountain Co., Chicago 3, Ill.
Zonolite Co., Chicago 3, Ill.

Jackets

Atlas Mfg. Co., St. Paul 14, Minn.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Crane Co., Chicago 40, Ill.
Dornback Furnace & Fdry. Co., Cleveland, Ohio
Elmira Steel Co., Brooklyn, N. Y.
Federal Boiler Co., Inc., Midland Park, N. J.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
General Machine Co., Inc., Emmaus, Pa.
Haydon Prods. Corp., Brooklyn 15, N. Y.
Mt. Hawley Mfg. Co., Peoria 4, Ill.
Norse Boiler Co., Inc., New Market, N. J.
Oil Eqpt. Mfg. Corp., New Haven, Conn.
Republic Prods. Co., Philadelphia 36, Pa.
U. S. Radiator Corp., Detroit 26, Mich.
Valley Forge Metals Co., Lansdale, Pa.

Protective Anodes

McRay Prods. of Calif., Los Angeles 38, Calif.

Seam protectors

National Boiler Co., Dayton 2, Ohio

Trim

Crane Co., Chicago 40, Ill.
Federal Boiler Co., Inc., Midland Park, N. J.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
New York Air Valve Corp., Brooklyn, N. Y.
Wright-Austin Co., Detroit 7, Mich.

Water feeders

(See listings "Controls, water level & feeder")

Boiler-Burner Units

Hot water, atomizing vertical rotary

Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Clayton Mfg. Co., El Monte, Calif.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Hayward Oil Burner Corp., Cambridge 38, Mass.
Marietta Metal Prods. Corp., Marietta, Pa.

Hot water, high pressure burner

Acme Heating Div., W. Hartford, Conn.
Airflame, Inc., Waukegan, Ill.
Airtemp Div., Dayton 1, Ohio
Alan Distributors, Inc., Worcester, Mass.
Aldrich Co., Wyoming, Ill.
Altherm, Inc., New York 21, N. Y.
American Oil Co., Baltimore, Md.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Ames Iron Works, Inc., Oswego, N. Y.
Anchor Div., New Albany, Ind.
Anchor Stove & Range Co., New Albany, Ind.
Auburn Burner Co., Auburn, Ind.
Auto-Heat Corp., Middletown, Conn.
Avery Farm Machy. Co., Peoria, Ill.
Barber Gas Burner Co., The, Cleveland 14, Ohio
Bethlehem Fdry. & Machine Co., Bethlehem, Pa.
Bock Corp., Madison 4, Wisc.
Boiler Eng. & Supply Co., Inc., Phoenixville, Pa.
Brown Fintube Co., Elyria, Ohio
Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Bryan Steam Corp., Peru, Ind.
Bryant Air Conditioning Corp., Philadelphia 23, Pa.
Burcar Mfg. Co., Stamford, Conn.
Burnham Corp., Irvington, N. Y.
Century Eng. Corp., Cedar Rapids, Iowa
Clayton Mfg. Co., El Monte, Calif.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
Coal-O-Matic Co., Trucksville, Pa.
Columbia Boiler Co., Pottstown, Pa.
Crane Co., Chicago 40, Ill.
Crown Petroleum Corp., Hartford, Conn.
Cyclotherm Div., Oswego, N. Y.
Delco Appliance Div., Rochester, N. Y.
Delta Htg. Corp., Trenton 8, N. J.
DeSoto Oil Burner Co., York, Pa.
Dewey-Shepard Boiler Co., Indianapolis 2, Ind.
Diesel Oil Burner Corp. of New York, Jamaica 5, N. Y.
Eckhart Mfg. Co., Inc., Union, N. J.
Eclipse Fuel Eng. Co., Rockford, Ill.
Electric Furnace-Man, Inc., Emmaus, Pa.
Electrol Burner Mfg. Co., Inc., Rutherford, N. J.
Esso Standard Oil Co., New York 19, N. Y.
Farrar & Trefts, Inc., Buffalo 12, N. Y.
Fairchester Oil Co., Inc., Port Chester, N. Y.
Federal Boiler Co., Inc., Midland Park, N. J.
Federal Oil Burner Co., Inc., Philadelphia 4, Pa.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
Fluid Heat Div., Baltimore 24, Md.
Gabriel Boiler & Fabrication Co., Portland 9, Ore.
General Automatic Prods. Corp., Baltimore 13, Md.
General Htg. Prods. Co., Philadelphia, Pa.
General Machine Co., Inc., Emmaus, Pa.
General Oil Htg. Corp., W. New York, N. J.
Gerstein & Cooper Co., Boston, Mass.
Gibraltar Corp. of America, Inc., Brooklyn, N. Y.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Greene Mfg. Co., A., Philadelphia, Pa.
Hanson-Gates Mfg. Co., Inc., Reading, Mass.
Hapman-Dutton Co., Kalamazoo, Mich.
Hart Heat Div., Peoria, Ill.
Harvey-Whipple, Inc., Springfield, Mass.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Hayward Oil Burner Corp., Cambridge 38, Mass.
Heil Co., The, Milwaukee 1, Wisc.
Herco Oil Burner Corp., Lancaster, Pa.
Hershey Machine & Fdry. Co., Manheim, Pa.
International Heater Co., Utica, N. Y.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Johnson Co., S. T., Oakland, Calif.
K. G. Mfg. Corp., Center Valley, Pa.
Kewanee-Ross Corp., Kewanee, Ill.
King Boiler & Furnace Co., Shade Gap, Pa.
Kinsley Burner & Machine Co., Providence, R. I.
Kohler Co., Kohler, Wisc.
LaSalle Oil Burner Co., Inc., Seattle 3, Wash.
Lycoming Div., Williamsport, Pa.
Major Oil Burner Co., Philadelphia 22, Pa.
Manville Boiler Co., Inc., New York 17, N. Y.
Marietta Metal Prods. Corp., Marietta, Pa.
May Oil Burner Corp., Baltimore 30, Md.
Metro Oilburner Mfg. Co., Inc., East Hampton, Mass.
Michigan Tank & Heater Corp., Dearborn, Mich.
Morheat Corp., Lansing 12, Mich.
Mt. Hawley Mfg. Co., Peoria 4, Ill.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Airoil Burner Co., Philadelphia 34, Pa.
National Home Eqpt. Co., New York 7, N. Y.
National Rad. Co., The, Johnstown, Pa.
National Steel Construction Co., Inc., of Indiana, Logansport, Ind.
New Yorker Steel Boiler Co., Inc., Colmar, Pa.
Norge Heat Div., Kalamazoo, Mich.
Norse Boiler Co., Inc., New Market, N. J.
Nu-Way Corp., The, Rock Island, Ill.
Oil Eqpt. Laboratories, Inc., Elizabeth, N. J.
Ontario Iron Works, Pulaski, N. Y.
Orr & Sembower, Inc., Reading, Pa.
Paragon Oil Burner Corp., Brooklyn 22, N. Y.
Peerless Heater Div., Boyertown, Pa.
Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Quiet Automatic Burner Corp., Newark 4, N. J.
Ray Oil Burner Co., San Francisco 12, Calif.
Red Wing Oil Burner Co., Medford, Mass.
Reif-Rexoil, Inc., Buffalo 3, N. Y.
Robot Auto-Heat Corp., The, Middletown, Conn.
Russo, Inc., Thomas D., Boston 31, Mass.
Schwab Safe Co., Lafayette, Ind.
Silent Glow Oil Corp., Hartford 6, Conn.
Simplex Oil Heating Corp., Philadelphia 11, Pa.
Smith Corp., A. O., Milwaukee 1, Wis.
Smith Co., Inc., H. B., Westfield, Mass.
Standard Arcoil Corp., Newark 8, N. J.
Steel Prods., Inc., W. Haven, Conn.
Stewart Oil Burner Co., Hanover, Pa.
Stout & Sons, David, St. Louis 17, Mo.
Surface Combustion Corp., Toledo 1, Ohio
Thatcher Furnace Co., Garwood, N. J.
Toridheet Div., Cleveland 2, Ohio
Triad Prods. Corp., Chicago 40, Ill.
Tru-Heet Co., Trenton, N. J.
U. S. Machine Div., Lebanon, Ind.
U. S. Rad. Corp., Detroit 26, Mich.
V&E Prods., Inc., Schuylkill Haven, Pa.
Viking Oil Co., Milwaukee, Wisc.
Waltham Oil Burner Co., E. Boston, Mass.
Wayne Home Eqpt. Co., Inc., Ft. Wayne 4, Ind.
Weatherall Eng., Inc., Providence, R. I.
Weil-McLain Co., Michigan City, Ind.
Wiegand Co., E. L., Pittsburgh 8, Pa.
Will-Burt Co., Orrville, Ohio
Williams Automatic, Inc., White Plains, N. Y.
Wm. Bros Boiler & Mfg. Co., Minneapolis, Minn.
Williams Div., Bloomington, Ill.
Winston Co., Inc., Newark 8, N. J.
Winston Co. of Mass., Boston 18, Mass.
York-Shipley, Inc., York, Pa.

Hot water, low pressure burner

Airflame, Inc., Waukegan, Ill.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
General Electric Co., Bloomfield, N. J.
Scott-Newcomb, Inc., St. Louis 19, Mo.
U. S. Machine Div., Lebanon, Ind.
Williams Div., Bloomington, Ill.

Hot water, vaporizing

Boiler Eng. & Supply Co., Inc., Phoenixville, Pa.
Brandenburg Industries, Inc., Baltimore 9, Md.
Brown Fintube Co., Elyria, Ohio
Dewey-Shepard Boiler Co., Indianapolis 2, Ind.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Gibralter Corp. of America, Inc., Brooklyn 11, N. Y.

HomEase Prods. Co., Paterson 3, N. J.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Kresno-Stamm Mfg. Co., Palisades Park, N. J.
Michigan Burner Co., Detroit 28, Mich.
Oil Eqpt. Laboratories, Inc., Elizabeth, N. J.
Portmar Boiler Co., Inc., Brooklyn 15, N. Y.

Hot water, wall flame vertical rotary

Fluid Heat Div., Baltimore 24, Md.
Gibralter Corp. of America, Inc., Brooklyn 11, N. Y.
Marietta Metal Prods. Corp., Marietta, Pa.
Norse Boiler Co., Inc., New Market, N. J.
Portmar Boiler Co., Inc., Brooklyn 15, N. Y.
Timken Silent Automatic Div., Jackson, Mich.
Toridheet Div., Cleveland 2, Ohio
V & E Prods., Inc., Schuylkill Haven, Pa.
Viking Oil Co., Milwaukee, Wisc.

Steam, atomizing vertical rotary

Gabriel Boiler & Fabrication Co., Portland 9, Ore.
Gem Fuel Oil Burners, Frankfort, Ky.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Hayward Oil Burner Corp., Cambridge 38, Mass.
Marietta Metal Prods. Corp., Marietta, Pa.
Staffco Eng. Co., Chicago 38, Ill.

Steam, horizontal rotary

Hapman-Dutton Co., Kalamazoo, Mich.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.

Steam generator

Altherm, Inc., New York 21, N. Y.
Ames Iron Works, Inc., Oswego, N. Y.
Boiler Eng. & Supply Co., Inc., Phoenixville, Pa.
Burkhart Eng. Asso., Boston, Mass.
Brown Fintube Co., Elyria, Ohio
Clayton Mfg. Co., El Monte, Calif.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
Columbia Boiler Co., Pottstown, Pa.
Cyclotherm Div., Oswego, N. Y.
Dewey-Shepard Boiler Co., Indianapolis, Ind.
Dixon Boiler Works, Los Angeles, Calif.
Eclipse Fuel Eng. Co., Rockford, Ill.
Erie City Iron Works, Erie, Pa.
Fulton Boiler Works, Inc., Fulton, N. Y.
Gabriel Boiler Fabrication Co., Portland 9, Ore.
Hapman-Dutton Co., Kalamazoo, Mich.
Hoffberger Co., C., Baltimore 2, Md.
International Boiler Works Co., The, East Stroudsburg, Pa.
Johnston Bros., Inc., Ferrysburg, Mich.
Lattner Mfg. Co., P. M., Cedar Rapids, Iowa
Leahy Mfg. Co., Los Angeles 21, Calif.
Leffel & Co., The James, Springfield, Ohio
Lookout Boiler & Mfg. Co., Chattanooga 1, Tenn.
Mears-Kane-Offeldt, Inc., Bridgeport, Pa.
Metro Oil Burner Mfg. Co., Inc., Easthampton, Mass.
Morheat Corp., Lansing 12, Mich.
Mund Boilers, Inc., Los Angeles 63, Calif.
Ontario Iron Works, Pulaski, N. Y.
Orr & Sembower, Inc., Reading, Pa.
Parker Boiler Mfg. Co., Inc., Sid E., Los Angeles 11, Calif.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Riley Stoker Corp., Worcester, Mass.
Sellers Eng., Chicago, Ill.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.
Staffco Eng. Corp., Chicago 38, Ill.
Stewart Oil Burner Co., Hanover, Pa.
Springfield Boiler Co., Springfield, Ill.
Stout & Sons, David, St. Louis 17, Mo.
Superior Combustion Industries, Inc., New York, N. Y.
Titusville Iron Works, Inc., Titusville, Pa.
Wickes Boiler Co., Saginaw, Mich.
Wm. Bros Boiler & Mfg. Co., Minneapolis, Minn.
York-Shipley, Inc., York, Pa.

Steam, high pressure burner

Airflame, Inc., Waukegan, Ill.
Airtemp Div., Dayton 1, Ohio
Alan Distributors, Inc., Worcester, Mass.
Aldrich Co., Wyoming, Ill.
Altherm, Inc., New York 31, N. Y.
American Oil Co., Baltimore, Md.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Ames Iron Works, Inc., Oswego, N. Y.
Anchor Div., New Albany, Ind.
Anchor Stove & Range Co., New Albany, Ind.
Auburn Burner Co., Auburn, Ind.
Avery Farm Machy. Co., Peoria, Ill.
Barber Gas Burner Co., The, Cleveland 14, Ohio
Berkley Mfg. Co., Philadelphia, Pa.
Bethlehem Fdry. & Machine Co., Bethlehem, Pa.
Billow Corp., Chicago 6, Ill.
Brown Fintube Co., Elyria, Ohio
Bryan Steam Corp., Peru, Ind.
Bryant Air Conditioning Corp., Philadelphia 23, Pa.
Burcar Mfg. Co., Stamford, Conn.
Chalmers Oil Burner Co., Minneapolis, Minn.
Clayton Mfg. Co., El Monte, Calif.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
Coal-O-Matic Co., Trucksville, Pa.
Columbia Boiler Co., Pottstown, Pa.
Crane Co., Chicago 40, Ill.
Cyclotherm Div., Oswego, N. Y.
Delco Appliance Div., Rochester, N. Y.
Delta Heating Corp., Trenton 8, N. J.
DeSoto Oil Burner Co., York, Pa.
Dewey-Shepard Boiler Co., Indianapolis, Ind.
Eckhart Mfg. Co., Inc., Union, N. J.
Eclipse Fuel Eng. Co., Rockford, Ill.
Electric Furnace-Man, Inc., Emmaus, Pa.
Electrol Burner Mfg. Co., Inc.
Esso Standard Oil Co., New York 19, N. Y.
Fairchester Oil Co., Inc., Port Chester, N. Y.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Farrar & Trefts, Inc., Buffalo 12, N. Y.
Federal Boiler Co., Inc., Midland Park, N. J.
Federal Oil Burner Co., Inc., Philadelphia 4, Pa.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
Fluid Heat Div., Baltimore 24, Md.
Fulton Boiler Works, Inc., Fulton, N. Y.
Gabriel Boiler & Fabrication Co., Portland 9, Ore.
Gem Fuel Oil Burners, Frankfort, Ky.
General Automatic Prods. Corp., Baltimore, Md.
General Heating Prods. Co., Philadelphia, Pa.
General Machine Co., Inc., Emmaus, Pa.
General Oil Htg. Corp., W. Hartford, Conn.
Gibraltar Corp. of America, Inc., Brooklyn, N. Y.
Gilbert & Barker Mfg. Co., West Springfield, Mass.
A. Greene Mfg. Co., Philadelphia, Pa.
Hapman-Dutton Co., Kalamazoo, Mich.
Hart Heat Div., Peoria, Ill.
Harvey-Whipple, Inc., Springfield, Mass.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Hayward Oil Burner Corp., Cambridge 38, Mass.
Heil Co., The, Milwaukee 1, Wisc.
Herco Oil Burner Corp., Lancaster, Pa.
Hershey Machine & Fdry. Co., Manheim, Pa.
HomEase Prods. Co., Paterson 3, N. J.
International Heater Co., Utica, N. Y.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Johnson Co., S. T., Oakland, Calif.
Johnston Bros., Inc., Ferrysburg, Mich.
K. G. Mfg. Corp., Center Valley, Pa.
Kewanee-Ross Corp., Kewanee, Ill.
King Boiler & Furnace Co., Shade Gap, Pa.
Kohler Co., Kohler, Wisc.
Kresno-Stamm Mfg. Co., Palisades Park, Calif.
Leahy Mfg. Co., Los Angeles 21, Calif.
Leffel & Co., The James, Springfield, Ohio
Major Oil Burner Co., Philadelphia 22, Pa.
Manville Boiler Co., Inc., New York 17, N. Y.
Marietta Metal Prods. Corp., Marietta, Pa.
May Oil Burner Corp., Baltimore 30, Md.
Metro Oil Burner Mfg. Co., Inc., Easthampton, Mass.
Morheat Corp., Lansing 12, Mich.
Mt. Hawley Mfg. Co., Peoria 4, Ill.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Airoil Burner Co., Philadelphia 34, Pa.
National Home Eqpt. Co., New York 7, N. Y.
National Radiator Co., The, Johnstown, Pa.
New Yorker Steel Boiler Co., Inc., Colmar, Pa.
Norge Heat, Div., Kalamazoo, Mich.
Norse Boiler Co., Inc., New Market, N. J.
Nu-Way Corp., The, Rock Island, Ill.
Oil Eqpt. Laboratories, Inc., Elizabeth, N. J.
Ontario Iron Works, Pulaski, N. Y.
Orr & Sembower, Inc., Reading, Pa.
Paragon Oil Burner Corp., Brooklyn 22, N. Y.
Peabody Eng. Corp., New York 36, N. Y.
Peerless Heater Div., Boyertown, Pa.
Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.
Preferred Utilities Corp., New York 23, N. Y.
Quiet Automatic Burner Corp., Newark 4, N. J.
Ray Oil Burner Co., San Francisco 12, Calif.

Red Wing Oil Burner Co., Medford, Mass.
Reif-Rexoil, Inc., Buffalo 3, N. Y.
Robot Auto-Heat Corp., The, Middletown, Conn.
Russo, Inc., Thomas D., Boston 31, Mass.
Schurs Oil Burner Co., Los Angeles 1, Calif.
Schwab Safe Co., Lafayette, Ind.
Selectrol Eng. Co., Brooklyn 23, N. Y.
Sherb, Inc., Warner J., New York 17, N. Y.
Silent Glow Oil Corp., Hartford 6, Conn.
Simplex Oil Heating Corp., Philadelphia 11, Pa.
Sinclair Refining Co., New York, N. Y.
Smith Co., Inc., H. B., Westfield, Mass.
Staffco Eng. Co., Chicago 38, Ill.
Standard Arcoil Corp., Newark 8, N. J.
Steel Prods., Inc., W. Haven, Conn.
Stewart Oil Burner Co., Hanover, Pa.
Stout & Sons, David, St. Louis 17, Mo.
Stutzman Oil Burner Co., Clifton Heights, Pa.
Surface Combustion Corp., Toledo 1, Ohio
Thatcher Furnace Co., Garwood, N. J.
Titusville Iron Works Div., Titusville, Pa.
Toridheet Div., Cleveland 2, Ohio
Triad Prods. Corp., Chicago 40, Ill.
Tru-Heet Co., Trenton, N. J.
U.S. Machine Div., Lebanon, Ind.
U.S. Radiator Corp., Detroit 26, Mich.
V&E Prods., Inc., Schuylkill Haven, Pa.
Viking Oil Co., Milwaukee, Wisc.
Waltham Oil Burner Co., E. Boston, Mass.
Wayne Home Eqpt. Co., Inc., Fort Wayne 4, Ind.
Weatherall Eng., Inc., Providence, R. I.
Weil-McLain Co., Michigan City, Ind.
Wilgus Mfg. Co., Los Angeles 21, Calif.
Williams Automatic Inc., White Plains, N .Y.
Wm. Bros Boiler & Mfg. Co., Minneapolis, Minn.
Williams Div., Bloomington, Ill.
Winston Co., Inc., Newark, N. J.
Winston Co. of Mass., Boston 18, Mass.
York-Shipley, Inc., York, Pa.

Steam, low pressure burner

Airflame, Inc., Waukegan, Ill.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
General Electric Co., Bloomfield, N. J.
Scott-Newcomb, Inc., St. Louis 19, Mo.
Simplex Oil Heating Corp., Philadelphia 11, Pa.
U.S. Machine Div., Lebanon, Ind.
Williams Div., Bloomington, Ill.

Steam, vaporizing

Boiler Eng. & Supply Co., Phoenixville, Pa.
Brown Fintube Co., Elyria, Ohio
Clayton Mfg. Co., El Monte, Calif.
Gibraltar Corp. of America, Inc., Brooklyn, N. Y.
Marietta Metal Prods. Corp., Marietta, Pa.
Michigan Burner Co., Detroit 28, Mich.
Oil Eqpt. Laboratories, Inc., Elizabeth, N. J.
Wilgus Mfg. Co., Los Angeles 21, Calif.

Steam, wall flame vertical rotary

Fluid Heat Div., Baltimore 24, Md.
Gibraltar Corp. of America, Inc., Brooklyn 11, N. Y.
Marietta Metal Prods. Corp., Marietta, Pa.
Norse Boiler Co., Inc., New Market, N. J.
Timken Silent Automatic Div., Jackson, Mich.
Toridheet Div., Cleveland 2, Ohio
V&E Prods., Inc., Schuylkill Haven, Pa.
Viking Oil Co., Milwaukee, Wisc.

Boilers, Domestic

Coal (to 2,000 sq. ft. steam)

American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Burnham Corp., Irvington, N. J.
Crane Co., Chicago 40, Ill.
Dunkirk Radiator Corp., Dunkirk, N. Y.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
General Heating Prods. Co., Philadelphia, Pa.
General Machine Co., Inc., Emmaus, Pa.
International Boiler Works Co., The, East Stroudsburg, Pa.
International Heater Co., Utica, N. Y.
K. G. Mfg. Corp., Center Valley, Pa.
Kewanee-Ross Corp., Kewanee, Ill.
Leffel & Co., The James, Springfield, Ohio
Loline Steel Boiler Co., Allentown, Pa.
Lycoming-Spencer Div., Williamsport, Pa.
National Radiator Co., The, Johnstown, Pa.
Ontario Iron Works, Pulaski, N. Y.
Peerless Heater Div., Boyertown, Pa.
Petrol Oil Burner Mfg. Co., Inc., Malden 48, Mass.
Portmar Boiler Co., Inc., Brooklyn 15, N. Y.
Smith Co., The H. B., Westerfield, Mass.
Standard Arcoil Corp., Newark 8, N. J.
Stewart Oil Burner Co., Hanover, Pa.
Terre Haute Boiler Works Co., Terre Haute, Ind.
Thatcher Furnace Co., Garwood, N. J.
Titusville Iron Works Co., The, Titusville, Pa.
U.S. Machine Div., Lebanon, Ind.
U.S. Radiator Corp., Detroit 26, Mich.
Utica Radiator Corp., Utica, N. Y.
V&E Prods., Inc., Schuylkill Haven, Pa.
Weil-McLain Co., Michigan City, Ind.
Wise Furnace Co., The, Newark, Ohio

Gas (to 2,000 sq. ft. steam)

Acme Heating Div., W. Hartford, Conn.
Airflame, Inc., Waukegan, Ill.
Aldrich Co., Wyoming, Ill.
Alert Boiler & Mfg. Co., Detroit 27, Mich.
Altherm, Inc., New York 21, N. Y.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anchor Div., New Albany, Ind.
Auburn Burner Co., Auburn, Ind.
Barber Gas Burner Co., The, Cleveland 14, Ohio
Brandenburg Industries, Inc., Baltimore, Md.
Brown Fintube Co., Elyria, Ohio
Bryan Steam Heat Corp., Peru, Ind.
Bryant Heater Div., Cleveland, Ohio
Burkhart Eng. Assoc., Boston, Mass.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
Columbia Boiler Co., Pottstown, Pa.
Delco Appliance Div., Rochester, N. Y.
Delta Heating Corp., Trenton, N. J.
Dewey-Shepard Boiler Co., Indianapolis 2, Ind.
Dunkirk Radiator Corp., Dunkirk, N. Y.
Eckhart Mfg. Co., Union, N. J.
Federal Boiler Co., Inc., Midland Park, N. J.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
General Automatic Prods. Corp., Baltimore, Md.
General Electric Co., Bloomfield, N. J.
General Heating Prods. Co., Philadelphia, Pa.
Gibraltar Corp. of America, Inc., Brooklyn, N. Y.
Harvey-Whipple, Inc., Springfield, Mass.
Heil Co., The, Milwaukee 1, Wisc.
International Boiler Works Co., The, East Stroudsburg, Pa.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Kewanee-Ross Corp., Kewanee, Ill.
Lycoming-Spencer Div., Williamsport, Pa.
Manville Boiler Co., Inc., New York 17, N. Y.
Morheat Corp., Lansing 12, Mich.
Mt. Hawley Mfg. Co., Peoria 4, Ill.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Radiator Co., The, Johnstown, Pa.
Norge Heat Div., Kalamazoo, Mich.
Norse Boiler Co., Inc., New Market, N. J.
Ontario Iron Works, Pulaski, N. Y.
Peerless Heater Div., Boyertown, Pa.
Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.
Pennsylvania Furnace & Iron Co., Warren, Pa.
Petrol Oil Burner Mfg. Co., Inc., Malden 48, Mass.
Portmar Boiler Co., Inc., Brooklyn, N. Y.
Republic Prods. Co., Philadelphia, Pa.
Richmond Rad. Co., Metuchen, N. J.
Smith Co., The H. B., Westfield, Mass.
Springfield Boiler Co., Springfield, Ill.
Standard Arcoil Corp., Newark 8, N. J.
Stewart Oil Burner Co., Hanover, Pa.
Struther Wells Corp., Titusville, Pa.
Surface Combustion Corp., Toledo 1, Ohio
Synchronous Flame, Inc., Chicago 4, Ill.
Terre Haute Boiler Works Co., Terre Haute, Ind.
Thatcher Furnace Co., Garwood, N. J.
Timken Silent Automatic Div., Jackson, Mich.
Titusville Iron Works Co., The, Titusville, Pa.
U.S. Machine Div., Lebanon, Ind.
U.S. Radiator Corp., Detroit 26, Mich.
Utica Radiator Corp., Utica, N. Y.
Utica Structural Steel, Inc., Utica 2, N. Y.
V&E Prods., Inc., Schuylkill Haven, Pa.
Viking Mfg. Corp., Cleveland, Ohio
Viking Oil Co., Milwaukee, Wisc.
Waterfilm Boilers, Inc., Jersey City 7, N. J.
Wayne Home Eqpt. Co., Inc., Ft. Wayne 4, Ind.

Weil-McLain Co., Michigan City, Ind.
Wescott-Alexander, Inc., Madison, N. J.
Williams Automatic, Inc., White Plains, N. Y.
Williams & Davis Boiler & Welding Co., Dallas, Texas
Wise Furnace Co., The, Newark, Ohio
York-Shipley, Inc., York, Pa.

Oil (to 2,000 sq. ft. steam)

Acme Heating Div., W. Hartford 10, Conn.
Airflame, Inc., Waukegan, Ill.
Airtemp Div., Dayton 1, Ohio
Aldrich Co., Wyoming, Ill.
Alert Boiler & Mfg. Co., Detroit 27, Mich.
Altherm, Inc., New York 21, N. Y.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anchor Div., New Albany, Ind.
Atlantic Steel Boiler Co., Inc., Philadelphia 46, Pa.
Auburn Burner Co., Auburn, Ind.
Barber Gas Burner Co., The, Cleveland 14, Ohio
Boggs Boiler Co., Akron, Ohio
Brandenburg Industries, Inc., Baltimore 9, Md.
Brown Fintube Co., Elyria, Ohio
Brown Products Co., Forest Hills, N. Y.
Bryan Steam Corp., Peru, Ind.
Bryant Air Conditioning Corp., Philadelphia 23, Pa.
Bryant Heater Div., Cleveland 10, Ohio
Burkhart Eng. Asso., Boston, Mass.
Burnham Corp., Irvington, N. Y.
Chalmers Oil Burner Co., Minneapolis, Minn.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
Columbia Boiler Co., Pottstown, Pa.
Combination Boiler Co., Benton Harbor, Mich.
Crane Co., Chicago 40, Ill.
Crotty Mfg. Co., Inc., Flushing, N. Y.
Delco Appliance Div., Rochester, N. Y.
Delta Heating Corp., Trenton 8, N. J.
DeSoto Oil Burner Co., York, Pa.
Dewey-Shepard Boiler Co., Indianapolis 2, Ind.
Dunkirk Radiator Corp., Dunkirk, N. Y.
Electric Furnace-man, Inc., Emmaus, Pa.
Electrol Burner Mfg. Co., Inc., Rutherford, N. J.
Federal Boiler Co., Inc., Midland Park, N. J.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
General Automatic Prods. Corp., Baltimore, Md.
General Electric Co., Bloomfield, N. J.
General Heating Products Co., Philadelphia, Pa.
General Machine Co., Inc., Emmaus, Pa.
General Thriftmaster Products, Philadelphia, Pa.
Gibraltar Corp. of America, Inc., Brooklyn, N. Y.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Harner Boiler Corp., Brooklyn 12, N. Y.
Hart Heat Div., Peoria, Ill.
Harvey-Whipple, Inc., Springfield, Mass.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Heil Co., The, Milwaukee 1, Wisc.
International Boiler Works Co., The, East Stroudsburg, Pa.
International Heater Co., Utica, N. Y.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Johnson, S. T., Co., Oakland, Calif.
K. G. Mfg. Corp., Center Valley, Pa.
Kewanee- Ross Corp., Kewanee, Ill.
King Boiler & Furnace Co., Shade Gap, Pa.
Kinsley Burner & Machine Co., Providence, R. I.
Lolino Steel Boiler Co., Allentown, Pa.
Lycoming-Spencer Div., Williamsport, Pa.
Manville Boiler Co., Inc., Hackettstown, N. J.
Marietta Metal Prods. Corp., Marietta, Ohio
Morheat Corp., Lansing 12, Mich.
Mt. Hawley Mfg. Co., Peoria 4, Ill.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Oil Company, Richmond, Va.
National Radiator Co., The, Johnstown, Pa.
New Yorker Steel Boiler Co., Inc., Colmar, Pa.
Norge Heat Div., Kalamazoo, Mich.
Norse Boiler Co., Inc., New Market, N. J.
Oil Eqpt. Laboratories, Inc., Elizabeth, N. J.
Ontario Iron Works, Pulaski, N. Y.
Otto Boiler Co., Inc., Springfield, Ill.
Peerless Heater Div., Boyertown, Pa.
Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.
Petrol Oil Burner Mfg., Inc., Malden 48, Mass.
Porcupine Boiler, N. Adams, Mass.
Portmar Boiler Co., Inc., Brooklyn, N. Y.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Quiet Automatic Burner Corp., Newark 4, N. J.
Republic Prods. Co., Philadelphia, Pa.
Riley Stoker Corp., Worcester, Mass.
Schemenauer Mfg. Co., Holland, Ohio
Seidelhuber Iron & Brass Works, Inc., Seattle 4, Wash.
Selectrol Eng. Co., Brooklyn 23, N. Y.
Shepard Heater Co., Inc., Terre Haute, Ind.
Siebring Mfg. Co., George, Iowa
Smith Co., The H. B., Westfield, Mass.
Smith Twin Tubular Boiler Co., Inc., Philadelphia 35, Pa.
Springfield Boiler Co., Springfield, Mass.
Standard Arcoil Corp., Newark 8, N. J.
Stewart Oil Burner Co., Hanover, Pa.
Struthers Wells Corp., Titusville, Pa.
Surface Combustion Corp., Toledo 1, Ohio
Synchronous Flame, Inc., Chicago 4, Ill.
Terre Haute Boiler Works Co., Terre Haute, Ind.
Thatcher Furnace Co., Garwood, N. J.
Timken Silent Automatic Div., Jackson, Mich.
Titusville Iron Works Co., The, Titusville, Pa.
Toridheet Div., Cleveland 2, Ohio
Tru-Heet Co., Trenton, N. J.
U.S. Machine Div., Lebanon, Ind.
U.S. Radiator Corp., Detroit 26, Mich.
Utica Radiator Corp., Utica, N. Y.
Utica Structural Steel, Inc., Utica 2, N. Y.
V&E Prods. Inc., Schuylkill Haven, Pa.
Vapor Heating Corp., Chicago 23, Ill.
Viking Mfg. Corp., Cleveland, Ohio
Viking Oil Co., Milwaukee, Wisc.
Waterfilm Boilers, Inc., Jersey City 7, N. J.
Wayne Home Eqpt. Co., Inc., Ft. Wayne 4, Ind.
Weatherall Eng., Inc., Providence, R. I.
Weil-McLain Co., Michigan City, Ind.
Westcott-Alexander, Inc., Madison, N. J.
Williams Automatic, Inc., White Plains, N. Y.
Williams & Davis Boiler & Welding Co., Dallas, Texas
Williams Div., Bloomington, Ill.
Winston Co., Inc., Newark, N. J.
Wise Furnace Co., The, Newark, Ohio
York-Shipley, Inc., York, Pa.
Zambelli Boiler Works, Philadelphia 25, Pa.

Bulk Plant Eng.

Henwood Associates, Roy M., New York 6, N. Y.

Burner Parts, Misc.

Air cones & diffusers

Airflame, Inc., Waukegan, Ill.
Burn-Rite Prods. Co., Yonkers 2, N. Y.
Eddington Metal Specialty Co., Eddington, Pa.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

Combustion heads

Allied Eng. Co., Allston 34, Mass.
Boston Machine Works Co., Lynn, Mass.
Eddington Metal Specialty Co., Eddington, Pa.
Fuel Econ-O-Mizer Co., Providence 5, R. I.
Madsen Service, Minneapolis, Minn.
Modern Die & Machine Co., Boston 25, Mass.
Monarch Mfg. Works, Inc., Philadelphia, Pa.
National Fuel Conservation Co., Inc., White Plains, N. Y.
Oil Heating Economy Corp., East Boston, Mass.
Robot Auto-Heat Corp., Middletown, Conn.
Volcano Burner Corp., New York 61, N. Y.

Electrodes, Ignition

Auburn Spark Plug Co., Inc., Auburn, N. Y.
Crown Eng. Corp., Keyport, N. J.
Dielectric Prods. Co., Inc., Jersey City 5, N. J.
Electrical Components Co., Newark 3, N. J.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hydrovalve Co., Brooklyn 3, N. Y.
Kinsley Burner & Machine Co., Providence, R. I.
Wheelco Div., Rockford, Ill.

Flame Mirrors

Eddington Metal Specialty Co., Eddington, Pa.
Monarch Mfg. Wks., Inc., Philadelphia, Pa.
Steinen Mfg. Co., Wm., Newark 5, N. J.

Fuses

Bussmann Mfg. Co., St. Louis 7, Mo.

Ignition Assemblies

Crown Eng. Corp., Keyport, N. J.
Dielectric Prods. Co., Inc., Jersey City 5, N. J.

Electrical Components Co., Newark 3, N. J.
Hydrovalve Co., Brooklyn 3, N. Y.
Kinsley Burner & Machine Co., Providence, R. I.
Union Spring & Mfg. Co., Jersey City, N. J.

Ignition Terminals

Aircraft-Marine Prods. Inc., Harrisburg, Pa.
Rajah Co., The, Newark 4, N. J.

Insulators, Ignition Ceramic

American Lava Corp., Chattanooga 5, Tenn.
Crown Eng. Corp., Keyport, N. J.
Auburn Spark Plug Co., Inc., Auburn, N. Y.
Dielectric Prods. Co., Jersey City 5, N. J.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hydrovalve Co., Brooklyn 3, N. Y.

Radio—Interference Eliminators

Dewey-Shepard Boiler Co., Indianapolis, Ind.
HomEase Prods. Div., Inc., Paterson, N. J.
Sprague Electric Co., N. Adams, Mass.
Union Spring & Mfg. Co., Jersey City, N. J.

Cable

High Tension

Chase Brass & Copper Co., Waterbury 20, Conn.
Chester Cable Corp., Chester, N. Y.
Dielectric Prods. Co., Jersey City 5, N. J.
Packard Electric Div., Warren, Ohio

Armored, Three-Wire

Chester Cable Corp., Chester, N. Y.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
U. S. Rubber Co., New York 20, N. Y.

Armored, Five-Wire

Chester Cable Corp., Chester, N. Y.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
U. S. Rubber Co., New York 20, N. Y.

Terminals

Crown Eng. Corp., Keyport, N. J.
Dielectric Prods. Co., Inc., Jersey City 5, N. J.

Calculators

Heat Loss

Calculator Specialties Co., Chicago, Ill.
Climatemaker Slide Rule, Bloomington, Ill.

Chimney

Liners

Acme Mfg. Co., Philadelphia, Pa.
Condensation Eng. Corp., Chicago 51, Ill.
Conn-State Furnace Co., Bridgeport, Conn.
The Excelsior Steel Furnace Co., Chicago 6, Ill.
Gary Steel Prods. Co., Gary, Ind.
Helman Chimney Sales Co., Fredericksburg, Va.
Specialty Sheet Metal Mfg. Co., Chicago, Ill.
Van-Packer Corp., Chicago 1, Ill.

Cleaning Tools

Breuer Electric Mfg. Co., Chicago 49, Ill.
Master Supply Co., Inc., Haverstraw, N. Y.
National Super Service Co., Inc., Toledo, Ohio
Schaefer Brush Mfg. Co., Milwaukee 4, Wisc.

Extensions

Artis Metals Co., Inc., Boise, Idaho
Conn. State Furnace Co., Inc., Brigdeport, Conn.
Excelsior Steel Furnace Co., The, Chicago, Ill.
Therm Gas Generator Co., Inc., Seattle, Wash.
Venturi Chimney Cap Co., Cleveland 9, Ohio

Hoods

Accurate Sheet Metal & Mfg. Works, Chicago 47, Ill.
Acme Mfg. Co., Philadelphia, Pa.
Adelta Mfg. Co., Inc., Philadelphia 46, Pa.
Artis Metals Co., Inc., Boise, Idaho
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Excelsior Steel Furnace Co., The, Chicago, Ill.
Gary Steel Prods. Co., Gary, Ind.
Therm Gas Generator Co., Inc., Seattle, Wash.
Venturi Chimney Cap Co., Cleveland 9, Ohio
Walker Mfg. & Sales Corp., St. Joseph, Mo.

Prefabricated Chimneys

Prefabricated Sales Corp., Fredericksburg, Va.
Condensation Eng. Corp., Chicago 51, Ill.
General Prods. Inc., Fredericksburg, Va.
Majestic Co., Inc., The, Huntington, Ind.
Robot Auto-Heat Corp., The, Middletown, Conn.

Caps

Little Burner Co., Inc., H. C., San Rafael, Calif.
Venturi Chimney Cap Co., Cleveland 9, Ohio
Walker Mfg. & Sales Corp., St. Joseph, Mo.
Wigwam Flue Top Co., Arlington, Mass.
Wood Mfg. Co., A. R., Luverne, Minn.

Compounds & Chemicals

Boiler Sealing

Ampion Corp., Long Island City 1, N. Y.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hercules Chemical Co., Inc., New York 13, N. Y.
Kalmide Chemicals, Inc., New York 17, N. Y.
Kenite Laboratory, Madison, N. J.
Kerner Chemical Co., Inc., Cedarhurst, N. Y.
King Chemical Co., Mt. Vernon, N. Y.
Metallizing Co. of America, Chicago, Ill.
Park-Hill Chemical Corp., Mt. Vernon, N. Y.
Radiator Specialty Co., Charlotte, N. C.
S.O.S. Products Co., Inc., Brooklyn 22, N. Y.
Stewart-Hall Chemical Corp., Mt. Vernon, N. Y.
Sunshine Chemical Co, Inc., John, Chicago 6, Ill.
"X" Laboratories, Inc., New York, N. Y.

Boiler Water Treatment

American Sand-Banum Co., Inc., New York 20, N. Y.
Ampion Corp., Long Island City 1, N. Y.
Atlantic Research Laboratories Corp., Long Island City 1, N. Y.
Beck Co., A. C., Minneapolis 11, Minn.
Cannon Chemical Co., Inc., Cambridge 41, Mass.
Dominion Chemical Co., Inc., New York, N. Y.
Dow Chemical Co, The, Midland, Mich.
Economy Lubricating Co., Charlestown 29, Mass.
Evis Mfg. Co., San Francisco, Calif.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
Gamlen Chemical Co., E. Paterson, N. J.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hercules Chemical Co., Inc., New York 13, N. Y.
Kalmide Chemicals, Inc., New York 17, N. Y.
Kenite Laboratory, Madison, N. J.
Kerner Chemical Co., Inc., Cedarhurst, N. Y.
King Chemical Co., Mt. Vernon, N. Y.
Kleenit Chemical Co., Medford, Mass.
Monsanto Chemical Co., St. Louis 4, Mo.
National Aluminate Corp., Chicago 38, Ill.
Norman Chemical Co., St. Paul 4, Minn.
Parke-Hill Chemical Corp., Mt. Vernon, N. Y.
S.O.S. Products Co., Inc., Brooklyn 22, N. Y.
Sterling Water Treatment Co., The, Cleveland 2, Ohio
Stewart-Hall Chemical Corp., Mt. Vernon, N. Y.
Strong, Carlisle & Hammond Co., Cleveland 13, Ohio
Sunshine Chemical Co., Inc., John, Chicago 6, Ill.
Water Treatment Co. of America, Pittsburgh 12, Pa.

Fueloil Treatment

Allen Co., Robert, Mechanicville, N. Y.
American Sand-Banum Co., Inc., New York 20, N. Y.
Amionic Chemical Co., Taunton, Mass.
Ampion Corp., Long Island City 1, N. Y.
Androc Chemical Co., Minneapolis, Minn.
Atlantic Research Laboratories Corp., Long Island City 1, N. Y.
Beck Co., A. C., Minneapolis 11, Minn.
Cannon Chemical Co., Inc., Cambridge 41, Mass.
Coughlan Co., C. N., W. Orange, N. J.
Cristy Specialty Corp., Worcester, Mass.
Delavan Mfg. Co., W. Des Moines, Iowa
Dominion Chemical Co., Inc., New York, N. Y.
Economy Lubricating Co., Charlestown 29, Mass.
Eds-Wil Engineering, Chicago 47, Ill.
Elmira Steel Co., Brooklyn, N. Y.
Enterprise Heat & Power Co., Chicago 22, Ill.
Evis Mfg. Co., San Francisco, Calif.

Federal Oil Burner Co., Inc., Philadelphia 4, Pa.
Gamlen Chemical Co., E. Paterson, N. J.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hercules Chemical Co., Inc., New York 13, N. Y.
Kalmide Chemicals, Inc., New York 17, N. Y.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
Kemix Laboratories, W. Springfield, Pa.
Kerner Chemical Co., Inc., Cedarhurst, N. Y.
King Chemical Co., Mt. Vernon, N. Y.
Kleenit Chemical Co., Medford, Mass.
Monsanto Chemical Co., St. Louis 4, Mo.
National Aluminate Corp. Chicago 38, Ill.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Norman Chemical Co., St. Paul 4, Minn.
Oil Heating Economy Corp., East Boston, Mass.
Oronite Chemical Co., San Francisco 4, Calif.
Oxi Corp., Gary, Ind.
OXO Gas Co., New York 16, N. Y.
Parke-Hill Chemical Corp., Mt. Vernon, N. Y.
Radiator Specialty Co., Charlotte, N. C.
S.O.S. Products Co., Inc., Brooklyn 22, N. Y.
Sanders Chemical Co., Philadelphia, Pa.
Shell Chemical Corp., New York, N. Y.
Sherb, Inc., Warner J., New York 17, N. Y.
Sterling Water Treatment Co., The, Cleveland 2, Ohio
Stewart-Hall Chemical Corp., Mt. Vernon, N. Y.
U.S. Petroleum Co., Clifton, N. J.

Furnace Cement

Armstrong Co., Chicago 28, Ill.
Carolina Refractories Co., Hartsville, S. C.
Clinton Paint Co., Clinton, N. Y.
Eagle-Picher Co., The, Cincinnati 1, Ohio
Gamlen Chemical Co., E. Paterson, N. J.
Hercules Chemical Co., Inc., New York 13, N. Y.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Pecora Paint Co., Inc., Philadelphia 40, Pa.
S.O.S. Products Co., Inc., Brooklyn 22, N. Y.
Sall Mountain Co, Hamilton, Ohio
Walsh Refractories Corp., St. Louis 7, Mo.

Grease Removing

Allen Co., Robert, Mechanicville, N. Y.
Ampion Corp., Long Island City, N. Y.
Atlantic Research Laboratories Corp., Long Island City 1, N. Y.
Cannon Chemical Co., Inc., Cambridge 41, Mass.
Dow Chemical Co., The, Midland, Mich.
Gamlen Chemical Co., E. Paterson, N. J.
Harvey, Inc., Sid, Valley Stream, N. Y.
Homestead Valve Mfg. Co., Coraopolis, Pa.
Kerner Chemical Co., Inc., Cedarhurst, N. Y.
King Chemical Co., Mt. Vernon, N. Y.
Norman Chemical Co., St. Paul 4, Minn.
Parke-Hill Chemical Corp., Mt. Vernon, N. Y.
S.O.S. Products Co., Inc., Brooklyn 22, N. Y.
Stewart-Hall Chemical Corp., Mt. Vernon, N. Y.
Sunshine Chemical Co., John, The, Chicago 6, Ill.

Hand Cleaning

Ampion Corp., Long Island City 1, N. Y.
Atlantic Research Laboratories Corp., Long Island City 1, N. Y.
Gamlen Chemical Co., E. Paterson, N. J.
Kerner Chemical Co., Inc., Cedarhurst, N. Y.
King Chemical Co., Mt. Vernon, N. Y.
Muench Laboratories, Inc., The, St. Louis 8, Mo.
Norman Chemical Co., St. Paul 4, Minn.
Parke-Hill Chemical Corp., Mt. Vernon, N. Y.
Pecora Paint Co., Inc., Philadelphia 40, Pa.
Radiator Specialty Co., Charlotte, N. C.
S.O.S. Products, Inc., Brooklyn 22, N. Y.
Stewart-Hall Chemical Corp., Mt. Vernon, .N Y.

Heat Exchanger Cleaning

Gamlen Chemical Co., E. Paterson, N. J.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
Parke-Hill Chemical Corp., Mt. Vernon, N. Y.
S.O.S. Products, Inc., Brooklyn 22, N. Y.

Oil Absorbent

Kerner Chemical Co., Inc., Cedarhurst, N. Y.
Ready-Crete Co., Milwaukee, Wisc.
Tankit Co., Newark, N. J.

Pipe Joint, Oil

Buckeye Iron & Brass Works, Dayton 1, Ohio
Crane Packing Co., Chicago 13, Ill.
Gasoilair Eqpt. Co., New Haven, Conn.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Harbinson & Co., Inc., James K., Buffalo 2, N. Y.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hercules Chemical Co., Inc., New York 13, N. Y.
Kenite Laboratory, Madison, N. J.
Kerner Chemical Co., Inc., Cedarhurst, N. Y.
Key Co., E. St. Louis, Ill.
King Chemical Co., Mt. Vernon, N. Y.
Lake Chemical Co., Chicago 12, Ill.
Leggitt Co., S. H., Marshall, Mich.
Pecora Paint Co., Inc., Philadelphia 40, Pa.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Radiator Specialty Co., Charlotte, N. C.
Rector Well Equipment Co., Inc., Houston 2, Tex.
S.O.S. Products Co., Inc., Brooklyn 22, N. Y.
Sunshine Chemical Co., Inc., John, Chicago 6, Ill.
Whitlam Mfg. Co., J. C., Wadsworth, Ohio

Pipe Joint, Steam

Cantleek Products Corp., Flushing 54, N. Y.
Crane Packing Co., Chicago 13, Ill.
Grinnell Co., Inc., Providence 1, R. I.
Harbinson & Co., Inc., James K., Buffalo 2, N. Y.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hercules Chemical Co., Inc., New York 13, N. Y.
Kenite Laboratory, Madison, N. J.
Kerner Chemical Co., Inc., Cedarhurst, N. Y.
Key Co., E. St. Louis, Ill.
King Chemical Co., Mt. Vernon, N. Y.
Lake Chemical Co., Chicago 12, Ill.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Radiator Specialty Co., Charlotte, N. C.
S.O.S. Products Co., Inc., Brooklyn 22, N. Y.
Sunshine Chemical Co., Inc., John, Chicago 6, Ill.
Whitlam Mfg. Co., J. C., Wadsworth, Ohio
"X" Laboratories, Inc., New York, N. Y.

Rust Preventing

American Sand Banum Co., Inc., New York 20, N. Y.
Ampion Corp., Long Island City 1, N. Y.
Atlantic Research Laboratories Corp., Long Island City 1, N. Y.
Cannon Chemical Co., Inc., Cambridge 41, Mass.
Dominion Chemical Co., Inc., New York, N. Y.
Gamlen Chemical Co., E. Paterson, N. J.
Harbinson & Co., Inc., James K., Buffalo 2, N. Y.
Hercules Chemical Co., Inc., New York 13, N. Y.
Kalmide Chemicals, Inc., New York 17, N. Y.
Kenite Laboratory, Madison, N. J.
Kerner Chemical Co., Inc., Cedarhurst, N. Y.
King Chemical Co., Mt. Vernon, N. Y.
Kleenit Chemical Co., Medford, Mass.
Monsanto Chemical Co., St. Louis 4, Mo.
Parke-Hill Chemical Corp., Mt. Vernon, N. Y.
S.O.S. Products Co., Inc., Brooklyn 22, N. Y.
Stewart-Hall Chemical Corp., Mt. Vernon, N. Y.
Sudbury Laboratory, So. Sudbury, Mass.
Sunshine Chemical Co., Inc., John, Chicago 6, Ill.
"X" Laboratories, Inc., New York, N. Y.

Soot Destroyer

Allen Co., Robert C., Mechanicville, N. Y.
Amionic Chemical Co., Taunton, Mass.
Ampion Corp., Long Island City 1, N. Y.
Atlantic Research Laboratories Corp., Long Island City 1, N. Y.
Beck Co., A. C., Minneapolis 11, Minn.
Cleen Sweep Co., So. Lansing 9, Mich.
Coughlan Co., C. N., West Orange, N. J.
Dominion Chemical Co., Inc., New York, N. Y.
Elmira Steel Co., Brooklyn, N. Y.
Gamlen Chemical Co., E. Paterson, N. J.
General Filters, Inc., Novi, Mich.
Harvey, Inc., Sid, Valley Stream, N. Y.
Healy-Ruff Co., St. Paul 14, Minn.
Hercules Chemical Co., Inc., New York 13, N. Y.
Kalmide Chemicals, Inc., New York 17, N. Y.
Kenite Laboratory, Madison, N. J.
Kerner Chemical Co., Inc., Cedarhurst, N. Y.
King Chemical Co., Mt. Vernon, N. Y.
Kleenit Chemical Co., Medford, Mass.
Marine Electrolysis Eliminator Co., Michigan City, Ind.

Miller Prods. Co., Lansing, Mich.
National Aluminate Corp., Chicago 38, Ill.
Norman Chemical Co., St. Paul 4, Minn.
Oxi Corp., Gary, Ind.
Parke-Hill Chemical Corp., Mt. Vernon, N. Y.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Rad. Specialty Co., Charlotte, N. C.
S.O.S. Products Co., Inc., Brooklyn 22, N. Y.
Sherb, Inc., Warner J., New York 17, N. Y.
Simplex Heater Control Co., St. Paul, Minn.
Standard Railway Fusee Corp., Needham Heights 94, Mass.
Sterling Water Treatment Co., The, Cleveland 2, Ohio
Stewart-Hall Chemical Corp., Mt. Vernon, N. Y.
Sunshine Chemical Co., Inc., John, Chicago 6, Ill.
Water Treatment Co. of America, Pittsburgh 12, Pa.

Water Indicator

Gasoilair Eqpt. Co., New Haven, Conn.

Controls

Air Flow Switch

Drying Systems, Inc., Chicago 40, Ill.

Air Pressure

Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Damp-Vent Co., Bettendorf, Iowa
Defender Instrument & Regulator Co., St. Louis, Mo.
Dewey Gas Furnace Co., Detroit 2, Mich.
Eclipse Fuel Eng. Co., Rockford, Ill.
General Controls Co., Glendale, Calif.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Hays Corp., The, Michigan City 7, Ind.
Perfex Corp., The, Milwaukee, Wisc.
W. S. Rockwell Co., Fairfield, Conn.
Square D Co., Milwaukee 12, Wisc.
Strong, Carlisle & Hammond Co., Cleveland 13, Ohio
Watts Regulator Co., Lawrence, Mass.

Combination Fan & Limit

A-P Controls Corp., Milwaukee, Wisc.
Ace Instrument Co., Inc., Brooklyn 2, N. Y.
Automatic Devices Co., Inc., Western Springs, Ill.
Cam-Stat Div., Los Angeles 64, Calif.
Detroit Controls Corp., Detroit 8, Mich.
General Controls Co., Glendale 1, Calif.
General Electric Co., Morrison, Ill.
Hays Corp., The, Michigan City 7, Ind.
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
North American Mfg. Co., The, Cleveland 5, Ohio
Penn Controls, Goshen, Ind.
Perfex Corp., Milwaukee 7, Wisc.
White-Rodgers Electric Co., St. Louis 6, Mo.

Damper Regulating

Ace Instrument Co., Inc., Brooklyn 2, N. Y.
Barber-Colman Co., Rockford, Ill.
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Cole Sewell Eng. Co., St. Paul 14, Minn.
Defender Instrument & Regulator Co., St. Louis, Mo.
Fuel Reduction Corp., Chicago 7, Ill.
General Controls Co., Glendale 1, Calif.
General Power Plant Corp., Ossining, N. Y.
Gerett Co., M. A., Milwaukee, Wisc.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Hart & Cooley Mfg. Co., Holland, Mich.
Hays Corp., The, Michigan City 7, Ind.
Heat Timer Corp., New York 12, N. Y.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Kol-Master Corp., Oregon, Ill.
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
National Fuel Conservation Co., Inc., White Plains, N. Y.
Parker-Kalon Corp., New York 14, N. Y.
Perfex Corp., Milwaukee 7, Wisc.
Wilgus Mfg. Co., Los Angeles 21, Calif.

Draft

Ace Instrument Co., Inc., Brooklyn 22, N. Y.
Artis Metals Co., Inc., Boise, Idaho
Bailey Meter Co., Cleveland 10, Ohio
Bearlee Prods. Co., Green Bay, Wisc.
Boston Machine Works Co., Lynn, Mass.
Bressler Eng. Service, Oregon 1, Ill.
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Cole Sewell Eng. Co., St. Paul 14, Minn.
Coleman Co., Inc., Wichita, Kan.
Conkey & Co., H. D., Mendota, Ill.
Defender Instrument & Regulator Co., St. Louis, Mo.
Field Control Div., Mendota, Ill.
Fuel Reduction Corp., Chicago 7, Ill.
General Controls Co., Glendale 1, Calif.
General Power Plant Corp., Ossining, N. Y.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hays Corp., The, Michigan City 7, Ind.
Heat Timer Corp., New York 12, N. Y.
Hotstream Heater Co., Cleveland, Ohio
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Jordon Eng. Co., Hartford, Wisc.
Kol-Master Corp., Oregon, Ill.
Krueger Sentry Gauge Co., Inc., Green Bay, Wisc.
Lifetime Mfg. Co., Pemberville, Ohio
Mechanical Prods. Co., Seattle 4, Wash.
Miller Co., The, Meriden, Conn.
National Fuel Conservation Co., Inc., White Plains, N. Y.
Perfex Corp., Milwaukee 7, Wisc.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Salina Metal Prods., Salina, Kans.
Simplex Mfg. Co., Fond du Lac, Wisc.
Therm Gas Generator Co., Inc., Seattle, Wash.
Walker Mfg. & Sales Corp., St. Joseph, Mo.
Whitty Co., Inc., Boston 34, Mass.
Windmaster Corp., Columbus 8, Ohio
Windmaster Draft Control Co., Michigan City, Ind.

Electric Valve

Automatic Switch Co., Orange, N. J.
Barber-Colman Co., Rockford, Ill.
Bryant Heater Div., Cleveland, Ohio
Cary Mfg. Co., Waupaca, Wisc.
Cooper Co., Clark, Palmyra, N. J.
Detroit Controls Corp., Detroit 8, Mich.
Dunham Co., C. A., Chicago 6, Ill.
General Controls Co., Glendale 1, Calif.
McCorkle Co., D. H., Berkeley, Calif.
McDonnell & Miller, Inc., Chicago 18, Ill.
Magnetrol, Inc., Chicago 23, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Perfex Corp., Milwaukee 7, Wisc.
Sarco Co., Inc., New York 1, N. Y.
Square D Co., Milwaukee 12, Wisc.
Union Spring & Mfg. Co., Jersey City, N. J.
Webster Electric Co., Racine, Wis.
White-Rodgers Electric Co., St. Louis 6, Mo.

Humidity

Barber-Colman Co., Rockford, Ill.
Cary Mfg. Co., Waupaca, Wisc.
General Controls Co., Glendale 1, Calif.
McDonnell & Miller, Inc., Chicago 18, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Penn Controls, Inc., Goshen, Ind.
Sarco Co., Inc., New York 1, N. Y.
Walton Laboratories, Inc., Irvington, N. J.

Limit, Air Temperature

Barber-Colman Co., Rockford, Ill.
Cam-Stat Div., Los Angeles 64, Calif.
Crise Controls Div., Columbus 16, Ohio
Detroit Controls Corp., Detroit 8, Mich.
General Electric Co., Morrison, Ill.
General Controls Co., Glendale 1, Calif.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
McClarty Systems, Battle Creek, Mich.
Mercoid Corp., The, Chicago 41, Ill.
Miller Co., The, Meriden, Conn.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Penn Controls, Inc., Goshen, Ind.
Perfex Corp., Milwaukee 7, Wisc.
Ray Oil Burner Co., San Francisco 12, Calif.
Round Oak Co., Inc. of Indiana, Dowagiac, Mich.
Sampsel Time Control, Inc., Spring Valley, Ill.
Sarco Co., Inc., New York 1, N. Y.
Spencer Thermostat Div., Attleboro, Mass.
Westinghouse Electric Co., Industrial Heating Div., Meadville, Pa.
White-Rodgers Electric Co., St. Louis 6, Mo.
Wiegand Co., E. L., Pittsburgh 8, Pa.

Limit, Steam Pressure

Automatic Devices Co., Inc., Western Springs, Ill.
Bailey Meter Co., Cleveland 10, Ohio
Barber-Colman Co., Rockford, Ill.
Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Crise Controls Div., Columbus 16, Ohio
Defender Instrument & Equipment Co., St. Louis, Mo.
Detroit Controls Corp., Detroit 8, Mich.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
General Controls Co., Glendale 1, Calif.
General Electric Co., Morrison, Ill.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Penn Controls, Inc., Goshen, Ind.
Perfex Corp., Milwaukee 7, Wisc.
Ray Oil Burner Co., San Francisco 12, Calif.
Sampsel Time Control, Inc., Spring Valley, Ill.
Strong, Carlisle & Hammond Co., Cleveland 13, Ohio
White-Rodgers Electric Co., St. Louis 6, Mo.
Wilgus Mfg. Co., Los Angeles 21, Calif.
Wright-Austin Co., Detroit 27, Mich.

Limit, Water Temperature

Automatic Devices Co., Inc., Western Springs, Ill.
Barber-Colman Co., Rockford, Ill.
Crise Controls Div., Columbus 16, Ohio
Detroit Controls Corp., Detroit 8, Mich.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
General Controls Co., Glendale 1, Calif.
General Electric Co., Morrison, Ill.
Globe Controls Co., Newark, N. J.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn
Penn Controls, Inc., Goshen, Ind.
Perfex Corp., Milwaukee 7, Wisc.
Ray Oil Burner Co., San Francisco 12, Calif.
Sampsel Time Control, Inc., Spring Valley, Ill.
Sarco Co., Inc., New York 1, N. Y.
Taco Heaters, Inc., Providence, R. I.
Thrush & Co., H. A., Peru, Ind.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.
White-Rodgers Electric Co., St. Louis 6, Mo.
Wiegand Co., E. L., Pittsburgh 8, Pa.

Low Water

Auburn Spark Plug Co., Inc., Auburn, N. Y.
Diamond Power Specialty Corp., Lancaster, Ohio
Eclipse Fuel Eng. Co., Rockford, Ill.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
General Controls Co., Glendale 1, Calif.
Globe Controls Co., Newark, N. J.
McDonnell & Miller, Inc., Chicago 18, Ill.
Magnetrol, Inc., Chicago 23, Ill.
Maid-O-Mist, Inc., Chicago 41, Ill.
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Newark Controls Co., Bloomfield, N. J.
Schaub Eng. Co., Fred H., Chicago 23, Ill.
Watts Regulator Co., Lawrence, Mass.
Wright-Austin Co., Detroit 7, Mich.

Oilburner Primary

Combustion Control Corp., Boston 15, Mass.
Crise Controls Div., Columbus 16, Ohio
Detroit Controls Corp., Detroit 8, Mich.
General Controls Co., Glendale 1, Calif.
General Electric Co., Morrison, Ill.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Mechanical Prods. Co., Seattle 4, Wash.
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Penn Controls, Inc., Goshen, Ind.
Perfex Corp., Milwaukee 7, Wisc.
Ray Oil Burner Co., San Francisco 12, Calif.
Sampsel Time Control, Inc., Spring Valley, Ill.
Wheelco Div., Rockford, Ill. (Panel)
White-Rodgers Electric Co., St. Louis 6, Mo.

Pneumatic Valve

Automatic Switch Co., Orange, N. J.
Cooper Co., Clark, Palmyra, N. J.
General Controls Co., Glendale 1, Calif.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
North American Mfg. Co., The, Cleveland 5, Ohio
Newark Controls Co., Bloomfield, N. J.
Perfex Corp., The, Milwaukee, Wisc.
Ray Oil Burner Co., San Francisco 12, Calif.

Pressure Gauge

Eddington Metal Specialty Co., Eddington, Pa.
Marsh Corp., Jas. P., Skokie, Ill.
Newark Controls Co., Bloomfield, N. J.
Ray Oil Burner Co., San Francisco 12, Calif.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Wright-Austin Co., Detroit 7, Ill.

Relays, Plain

Automatic Switch Co., Orange, N. J.
Barber-Colman Co., Rockford, Ill.
Burke Eng. Co., Los Angeles 7, Calif.
Cutler-Hammer, Inc., Milwaukee 1, Wisc.
Detroit Controls Corp., Detroit 8, Mich.
General Controls Co., Glendale 1, Calif.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Penn Controls, Inc., Goshen, Ind.
Perfex Corp., Milwaukee 7, Wisc.
Ray Oil Burner Co., San Francisco 12, Calif.
Spencer Thermostat Div., Attleboro, Mass.
Square D Co., Milwaukee 12, Wisc.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.
White-Rodgers Electric Co., St. Louis 6, Mo.
Weigand Co., E. L., Pittsburgh 8, Pa.

Room Temperature

A-P Controls Corp., Milwaukee, Wisc.
Automatic Devices Co., Inc., Western Springs, Ill.
Barber-Colman Co., Rockford, Ill.
Detroit Controls Corp., Detroit 8, Mich.
Dole Valve Co., Chicago 10, Ill.
Dunham Co., C. A., Chicago 6, Ill.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
Fulton Sylphon Div., Knoxville, Tenn.
General Controls Co., Glendale 1, Calif.
General Electric Co., Morrison, Ill.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
McCorkle Co., D. H., Berkeley, Calif.
McClarty Systems, Battle Creek, Mich.
Makomb Steel Prods. Co. Div., Macomb, Ill.
Mercoid Corp., The, Chicago 41, Ill.
Miller Co., The, Meriden, Conn.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Penn Controls, Inc., Goshen, Ind.
Perfex Corp., Milwaukee 7, Wisc.
Round Oak Co., Inc. of Indiana, Dowagiac, Mich.
Sampsel Time Control, Inc., Spring Valley, Inc.
Sarco Co., Inc., New York 1, N. Y.
Spencer Thermostat Div., Attleboro, Mass.
Sterling, Inc., Milwaukee 12, Wisc.
Thrush & Co., H. A., Peru, Ind.
U.S.Rad. Corp., Detroit 26, Mich.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.
White-Rodgers Electric Co., St. Louis 6, Mo.
Weigand Co., E. L., Pittsburgh 8, Pa.

Safety, Combustion

Bailey Meter Co., Cleveland 10, Ohio
Barber-Colman Co., Rockford, Ill.
Combustion Control Corp., Boston, Mass.
Defender Instrument & Regulator Co., St. Louis, Mo.
Detroit Controls Corp., Detroit 8, Mich.
Drying Systems, Inc., Chicago 40, Ill.
Eclipse Fuel Eng. Co., Rockford, Ill.
General Controls Co., Glendale 1, Calif.
Hays Corp., The, Michigan City 7, Ind.
Leahy Mfg. Co., Los Angeles 21, Calif.
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

North American Mfg. Co., The, Cleveland 5, Ohio
Penn Controls, Inc., Goshen, Ind.
Perfex Corp., Milwaukee 7, Wisc.
Ray Oil Burner Co., San Francisco 12, Calif.
Stout & Sons, David, St. Louis, Mo.
White-Rodgers Electric Co., St. Louis 6, Mo.

Systems, Individual Room Temperature

Barber-Colman Co., Rockford, Ill.
Crise Controls Div., Columbus 16, Ohio
Fulton Sylphon Div., Knoxville, Tenn.
General Controls Co., Glendale 1, Calif.
Heat Timer Corp., New York 12, N. Y.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Penn Controls, Inc., Goshen, Ind.
Perfex Corp., The, Milwaukee, Wisc.

Systems, Large Building Heating

Automatic Devices Co., Inc., Western Springs, Ill.
Bailey Meter Co., Cleveland 10, Ohio
Barber-Colman Co., Rockford, Ill.
Barnes & Jones, Boston 30, Mass.
Dunham Co., C. A., Chicago 6, Ill.
Fuel Watchman, Inc., New York 5, N. Y.
Hays Corp., The, Michigan City 7, Ind.
Heat Timer Corp., New York 12, N. Y.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Johnson Service Co., Milwaukee, Wisc.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Perfex Corp., The, Milwaukee, Wisc.
Warren Webster & Co., Camden 5, N. J.

Systems, Power Plant Boiler

Ace Instrument Co., Inc., Brooklyn 2, N. Y.
Bailey Meter Co., Cleveland 10, Ohio
General Controls Co., Glendale 1, Calif.
General Power Plant Corp., Ossining, N. Y.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Hays Corp., The, Michigan City 7, Ind.
Heat Timer Corp., New York 12, N. Y.
Leahy Mfg. Co., Los Angeles 21, Calif.
Lientz & Co., B. P., Kansas City 42, Mo.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Perfex Corp., The, Milwaukee, Wisc.

Temperature Modulating

A-P Controls Corp, Milwaukee, Wisc.
Automatic Devices Co., Inc., Western Springs, Ill.
Barber-Colman Co., Rockford, Ill.
Defender Instrument & Regulator Co., St. Louis, Mo.
Detroit Controls Corp., Detroit 8, Mich.
Dunham Co., C. A., Chicago, Ill.
Fulton Sylphon Div., Knoxville, Tenn.
General Controls Co., Glendale 1, Calif.
Heat Timer Corp., New York 12, N. Y.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
National Modulating Co., St. Paul 9, Minn.
Perfex Corp., The, Milwaukee, Wisc.
Sarco Co, Inc., New York 1, N. Y.
Smith Corp., A. O., Milwaukee, Wisc.
Sterling, Inc., Milwaukee 12 Wisc.

Thermometers, Airconditioning Systems

Bacharach Industrial Inst. Co., Pittsburgh 8, Pa.
Barber-Colman Co., Rockford, Ill.
Defender Instrument & Regulator Co., St. Louis, Mo.
General Controls Co, Glendale 1, Calif.
Marsh Corp., Jas. P., Skokie, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Pacific Transducer O H Corp., Los Angeles 64, Calif.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Sarco Co, Inc., New York 1, N Y.
Weston Electrical Instrument Corp., Newark 5, N. J.

Thermometers, Heating Boilers

Bailey Meter Co., Cleveland 10, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
Marsh Corp., Jas. P., Skokie, Ill.
New York Air Valve Corp., Brooklyn, N. Y.
Pacific Transducer O H Corp., Los Angeles 64, Calif.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Weston Electrical Instrument Corp., Newark 5, N. J.

Thermometers, Hot Water Storage Tanks

Barber-Colman Co., Rockford, Ill.
Defender Instrument & Regulator Co., St. Louis, Mo.
General Controls Co., Glendale 1, Calif.
Marsh Corp., Jas. P., Skokie, Ill.
New York Air Valve Corp., Brooklyn, N. Y.
O'Brien Steam Specialty Co, Inc., Syracuse 2, N. Y.
Pacific Transducer O H Corp., Los Angeles 64, Calif.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Sarco Co., Inc., New York 1, N. Y.
Weston Electrical Instrument Corp., Newark 5, N. J.

Thermometers, Warm Air Furnaces

A-P Controls Corp., Milwaukee, Wisc.
Bacharach Industrial Instr. Co., Pittsburgh 8, Pa.
Bailey Meter Co., Cleveland 10, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
General Controls Co., Glendale 1, Calif.
Pacific Transducer O H Corp., Los Angeles 64, Calif.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Weston Electrical Instrument Corp., Newark 5, N. J.

Thermostatic Lock Boxes

Harvey, Inc., Sid, Valley Stream, N. Y.
Thermolok Mfg. Co,. Brooklyn 25, N. Y.

Thermostats, Locking Devices

Thermolok Mfg. Co,. Brooklyn 25, N. Y.

Time Switches

Automatic Controls Corp., Ann Arbor, Mich.
International Register Co., Chicago 12, Ill.
Miller-Harris Instrument Co., Milwaukee, Wisc.
Paragon Electric Co., Two Rivers, Wisc.
Tork Clock Co., Inc., Mt. Vernon, N. Y.

Variable Speed, Fan

Volu-Trol Co., St. Paul 9, Minn.

Water Level & Feeder

Bailey Meter Co., Cleveland 10, Ohio
Bell & Gossett Co., Morton Grove, Ill.
Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Cutler-Hammer, Inc., Milwaukee 1, Wisc.
Defender Instrument & Regulator Co., St. Louis, Mo.
Eclipse Fuel Eng. Co., Rockford, Ill.
General Controls Co., Glendale 1, Calif.
Hays Corp., The, Michigan City 7, Ind.
Johnson Corp., The, Three Rivers, Mich.
McDonnell & Miller, Inc., Chicago 18, Ill.
Magnetrol, Inc., Chicago 23, Ill.
Maid-O-Mist, Inc., Chicago 41, Ill.
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Newark Controls Co., Bloomfield, N. J.
Sarco Co, Inc., New York 1, N. Y.
Schaub, Fred H., Engineering Co., Inc., Chicago 23, Ill.
Square D Co., Milwaukee 12, Wisc.
Watts Regulator Co., Lawrence, Mass.
Wright-Austin Co., Detroit 7, Mich.

Weather Compensated

Automatic Devices Co., Inc., Western Springs, Ill.
Barber-Colman Co., Rockford, Ill.
Bell & Gossett Co., Morton Grove, Ill.
Detroit Controls Corp., Detroit 8, Mich.
Dunham Co., C. A., Chicago, Ill.
Fuel Watchman, Inc., New York 5, N. Y.
Heat Timer Corp., New York 12, N. Y.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Sarco Co, Inc., New York 1, N. Y.
White-Rodgers Electric Co., St. Louis 6, Mo.

Couplings

Flexible, Shaft

Climax Flexible Coupling Co., Cleveland 10, Ohio
De Laval Steam Turbine Co., Trenton 2, N. J.
Flexible Couplings Mfg. Co., Chicago 19, Ill.
General Machine Co., Inc., Emmaus, Pa.
Guardian Prods. Corp., Michigan City, Ind.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hydrovalve Co., Brooklyn 3, N. Y.
Kraissl Co., The, Hackensack, N. J.
Lord Mfg. Co., Erie, Pa.

Lovejoy Flexible Coupling Co., Chicago 44, Ill.
Simplex Oil Heating Corp., Philadelphia, Pa.
Stow Mfg. Co., Binghamton, N. Y.
Thrush & Co., Peru, Ind.
Volcano Burner Corp., New York 61, N. Y.

Pipe

Barco Mfg. Co., Barrington, Ill.
Capitol Mfg. & Supply Co., Columbus, Ohio
Crane Co., Chicago 40, Ill.
Ever-Tite Coupling Co., New York 19, N. Y.
General Automatic Prod. Corp., Baltimore, Md.
Grinnell Co., Inc., Providence 1, R. I.
Johns-Manville Corp., New York 16, N. Y.
Leggitt Co., S. H., Marshall, Mich.
Madden Brass Prod. Co., Chicago, Ill.
Reliance Tubular Prod. Co., Cleveland, Ohio
Weatherhead Co., The, Cleveland 8, Ohio

Ducts

Aluminum

Acme Mfg. Co., Philadelphia 36, Pa.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Campbell Heating Co., Des Moines 17, Iowa
Char-Gale Mfg. Co., Anoka, Minn.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Norwalk Airconditioning Corp., The, So. Norwalk, Conn.
Ohio Valley Hardware & Roofing Co., Evansville 2, Ind.
Specialty Sheet Metal Mfg. Co., Chicago, Ill.
Swett Bros., Springfield, Mass.
U.S. Register Co., Battle Creek, Mich.
Viking Mfg. Corp., Cleveland, Ohio
Williamson Heater Co., The, Cincinnati 9, Ohio

Asbestos

Carey Mfg. Co., Philip, Cincinnati 15, Ohio
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Gustin-Bacon Mfg. Co., Kansas City 6, Mo.
Johns-Manville Corp., New York 16, N. Y.
Sall Mountain Co., Hamilton, Ohio
Swett Bros., Springfield, Mass.

Coated Fabric

Flexible Tubing Corp., Guilford, Conn.
Grand Island Furnace & Supply Co., Grand Island, Nebr.

Dampers

Acme Mfg. Co., Philadelphia 36, Pa.
Adelta Mfg. Co., Inc., Philadelphia 46, Pa.
Air Controls Prods., Inc., Coopersville, Mich.
Ajax Furnace Fitting Co., Cincinnati 2, Ohio
Armstrong Furnace Co., Columbus 12, Ohio
Barber-Colman Co., Rockford, Ill.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Chandler Co., Cedar Rapids, Ia.
Char-Gale Mfg. Co., Anoka, Minn.
Clayton & Lambert Mfg. Co., Louisville 10, Ky.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Duo-Dyne Corp., New Hyde Park, N. Y.
Excelsior Steel Furnace Co., The, Chicago 6, Ill.
Grand Island Furnace & Supply Co., Grand Island, Nebr.
Hart & Cooley Mfg. Co., Holland, Mich.
Keith Furnace Co., Des Moines, Iowa
Lennox Furnace Co., Marshalltown, Iowa
Majestic Co., Inc., The, Huntington, Ind.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Norwalk Airconditioning Corp., So. Norwalk, Conn.
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Round Oak Co., Inc., Dowagiac, Mich.
Swett Bros., Inc., Springfield, Mass.
Williamson Heater Co., The, Cincinnati 9, Ohio

Fiber

Acme Mfg. Co., Philadelphia 36, Pa.
Adelta Mfg. Co., Inc., Philadelphia 46, Pa.
Anchor Div., New Albany, Ind.
Armstrong Furnace Co., Columbus 12, Ohio
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Chandler Co., Cedar Rapids, Ia.
Char-Gale Mfg. Co., Anoka, Minn.
Clayton & Lambert Mfg. Co., Louisville 10, Ky.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Connelley Co., St. Louis 3, Mo.
Corbman Bros., Inc., Philadelphia, Pa.
Excelsior Steel Furnace Co., The, Chicago 6, Ill.
Farquhar Furniture Co., The, Wilmington, Ohio
Grand Island Furnace & Supply Co., Grand Island, Nebr.
Gray Metal Prod. Inc., Rochester 3, N. Y.
Green Colonial Furnace Co., Des Moines, Iowa
Home Furnace Co., Holland, Mich.
International Heater Co., Utica, N. Y.
Jettronaire, Inc., Springdale, Pa.
Johns-Manville Corp., New York 16, N. Y.
Keith Furnace Co., Des Moines, Iowa
Lennox Furnace Co., Marshalltown, Iowa
Majestic Co., Inc., The, Huntington, Ind.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Ohio Valley Hardware & Roofing Co., Evansville 2, Ind.
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Schecter Bros. Co., Philadelphia 22, Pa.
Sonoco Prods. Co., Hartsville, S. C.
Steel City Furnace Corp, Springdale, Pa.
Swett Bros., Inc., Springfield, Mass.
U.S. Register Co., Battle Creek, Mich.
Williamson Heater Co., The, Cincinnati 9, Ohio
York-Shipley, Inc., York, Pa.

Fittings

Acme Mfg., Philadelphia, Pa.
Adelta Mfg. Co., Inc., Philadelphia 46, Pa.
Ajax Furn. Fitting Co., Cincinnati 2, Ohio
Berger Furnace Mfg. Co., Pittsburgh, Pa.
Chandler Co., Cedar Rapids, Iowa
Char-Gale Mfg. Co., Anoka, Minn.
Clayton & Lambert Mfg. Co., Louisville, Ky.
Conn. State Furnace Co., Bridgeport, Conn.
Corbman Bros. Co., Inc., Philadelphia, Pa.
Excelsior Steel Furnace Co., The, Chicago, Ill.
Fox, Inc., Chris, Trenton 10, N. J.
Green Colonial Furnace Co., Des Moines, Iowa
Inland Steel Prods. Co., Milwaukee 1, Wisc.
Lennox Furnace Co., Marshalltown, Iowa
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Olson Mfg. Co., The, C. A., Elyria, Ohio
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Rossoe Mfg. Co., Seattle 9, Wash.
Sonoco Prods. Co., Hartsville, S. C.
Steel City Furnace Corp., Springdale, Pa.
Swett Bros., Inc., Springfield, Mass.
U.S. Register Co., Battle Creek, Mich.
Williamson Heater Co., The, Cincinnati 9, Ohio

Furnace Pipe, Round

Acme Mfg. Co., Philadelphia 36, Pa.
Adelta Mfg. Co., Inc., Philadelphia 46, Pa.
Ajax Furn. Fitting Co., Cincinnati 2, Ohio
Anchor Div., New Albany, Ind.
Armstrong Furnace Co., Columbus 12, Ohio
Artis Metals Co., Inc., Boise, Idaho
Berger Furnace Co., Pittsburgh 6, Pa.
Buckeye Furnace Pipe Co., Columbus, Ohio
Chandler Co., Cedar Rapids, Iowa
Char-Gale Mfg. Co., Anoka, Minn.
Clayton & Lambert Mfg. Co., Louisville 10, Ky.
Coleman Co., Inc., Wichita, Kan.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Connelley Co., St. Louis 3, Mo.
Corbman Bros., Inc., Philadelphia, Pa.
Excelsior Steel Furnace Co., The, Chicago 6, Ill.
Farquhar Furnace Co., The, Wilmington, Ohio
Gary Steel Prod. Co., Gary, Ind.
Grand Island Furnace & Supply Co., Grand Island, Nebr.
Gray Metal Prod., Inc., Rochester 3, N. Y.
Green Colonial Furnace Co., Des Moines, Iowa
Home Furnace Co., Holland, Mich.
Inland Steel Prods. Co., Milwaukee 1, Wisc.
International Heater Co., Utica, N. Y.
Jettronaire, Inc., Springdale, Pa.
Keith Furnace Co., Des Moines, Iowa
Lennox Furnace Co., Marshalltown, Iowa
Majestic Co., Inc., The, Huntington, Ind.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Norwalk Airconditioning Corp., So. Norwalk, Conn.
Ohio Valley Hardware & Roofing Co., Evansville 2, Ind.
Olson Mfg. Co., The C. A., Elyria, Ohio
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Radiation Furnace Corp., Benton Harbor, Mich.
Round Oak Co., Inc., Dowagiac, Mich.
Specialty Sheet Metal Mfg. Co., Chicago, Ill.

Steel City Furnace Corp., Springdale, Pa.
Thermo-Prods., Inc., North Judson, Ind.
U.S. Register Co., Battle Creek, Mich.
Vectaire Mfg. Co., Melrose, Mass.
Williamson Heater Co., The, Cincinnati 9, Ohio
York-Shipley, Inc., York, Pa.

Hangers

Linden Metal Specialty Co., Anoka, Minn.

Prefabricated, Galvanized

Acme Mfg. Co., Philadelphia 36, Pa.
Adelta Mfg. Co., Inc., Philadelphia 46, Pa.
Ajax Furn. Fitting Co., Cincinnati 2, Ohio
Armstrong Furnace Co., Columbus 12, Ohio
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Bryant Heater Div., Cleveland, Ohio
Campbell Heating Co., Des Moines 17, Iowa
Chandler Co., Cedar Rapids, Iowa
Char-Gale Mfg. Co., Anoka, Minn.
Clayton & Lambert Mfg. Co., Louisville 10, Ky.
Coleman Co., Inc., Wichita, Kans.
Columbian Steel Tank Co., Kansas City, Mo.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Connelley Co., St. Louis 3, Mo.
Corbman Bros., Inc., Philadelphia, Pa.
Damp-Vent Co., Bettendorf, Iowa
Erie City Iron Works, Erie, Pa.
Excelsior Steel Furnace Co., The, Chicago 6, Ill.
Farquhar Furnace Co., The, Wilmington, Ohio
Fox, Inc., Chris, Trenton 10, N. J.
Gary Steel Prod. Co., Gary, Ind.
General Automatic Prods. Corp., Baltimore, Md.
Grand Island Furnace & Supply Co., Grand Island, Nebr.
Gray Metal Prods. Inc., Rochester 3, N. Y.
Green Colonial Furnace Co., Des Moines, Iowa
Henry Furnace Co., Medina, Ohio
Home Furnace Co., Holland, Mich.
Illinois Iron & Bolt Co., Carpentersville, Ill.
Inland Steel Prods. Co., Milwaukee 1, Wis.
Jettronaire, Inc., Springdale, Pa.
Keith Furnace Co., Des Moines, Iowa
Lennox Furnace Co., Marshalltown, Iowa
Majestic Co., Inc., The, Huntington, Ind.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Norwalk Airconditioning Corp., The, So. Norwalk, Conn.
Ohio Valley Hardware & Roofing Co., Evansville 2, Ind.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Premier Furnace Co., Dowagiac, Mich.
Radiation Furnace Corp., Benton Harbor, Mich.
Rockwell Co., W. S., Fairfield, Conn.
Rossoe Mfg. Co., Seattle 9, Wash.
Round Oak Co., Inc., Dowagiac, Mich.
Schecter Bros. Co., Philadelphia 22, Pa.
Steel City Furnace Corp., Springdale, Pa.
Swett Bros., Inc., Springfield, Mass.
U.S. Register Co., Battle Creek, Mich.
Vectaire Mfg. Co., Melrose, Mass.
Williamson Heater Co., The, Cincinnati 9, Ohio
York-Shipley, Inc., York, Pa.

Screws

Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Swett Bros., Inc., Springfield, Mass.
U.S. Register Co., Battle Creek, Mich.

Smoke Pipe

Acme Mfg. Co., Philadelphia 36, Pa.
Adelta Mfg. Co., Inc., Philadelphia 46, Pa.
Anchor Div., New Albany, Ind.
Artis Metals Co., Inc., Boise, Idaho
Berger Furnace Co., Pittsburgh 6, Pa.
Chandler Co., Cedar Rapids, Iowa
Char-Gale Mfg. Co., Anoka, Minn.
Clayton & Lambert Mfg. Co., Louisville 10, Ky.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Connelley Co., St. Louis 3, Mo.
Corbman Bros., Inc., Philadelphia, Pa.
Excelsior Steel Furnace Co., The, Chicago 6, Ill.
Farquhar Furnace Co., The, Wilmington, Ohio
Fox, Inc., Chris, Trenton 10, N. J.
Gary Steel Prod. Co., Gary, Ind.
Grand Island Furnace & Supply Co., Grand Island, Nebr.
Gray Metal Prod. Inc., Rochester 3, N. Y.
Green Colonial Furnace Co., Des Moines, Iowa
Home Furnace Co., Holland, Mich.
Jettronaire, Inc., Springdale, Pa.
Keith Furnace Co., Des Moines, Iowa
Lennox Furnace Co., Marshalltown, Iowa
Majestic Co., Inc., The, Huntington, Ind.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Norwalk Airconditioning Corp., The, So. Norwalk, Conn.
Ohio Valley Hardware & Roofing Co., Evansville, Ind.
Olson Mfg. Co., The C. A., Elyria, Ohio
Peerless Furnace & Fdry. Inc., Indianapolis, Ind.
Round Oak Co., Inc., Dowagiac, Mich.
Specialty Sheet Metal Mfg. Co., Chicago, Ill.
Steel City Furnace Corp., Springdale, Pa.
Swett Bros., Inc., Springfield, Mass.
Thermo-Prods., Inc., North Judson, Ind.
U. S. Register Co., Battle Creek, Mich.
Williamson Heater Co., The, Cincinnati 9, Ohio

Fans and Blowers

Attic Cooling

Air Controls, Inc., Cleveland, Ohio
American Blower Corp., Dearborn, Mich.
American Coolair Corp., Jacksonville, Fla.
Buffalo Forge Co., Buffalo, N. Y.
Emerson Electric Mfg. Co., The, St. Louis 21, Mo.
Felter Co., John, Houston, Texas
General Blower Co., Morton Grove, Ill.
Grainger, Inc., W. W., Chicago 12, Ill.
Green Colonial Furnace Co., Des Moines, Iowa
Lau Blower Co., The, Dayton 7, Ohio
Lennox Furnace Co., The, Marshalltown, Iowa
Martin Fan & Blower Co., Inc., Chicago 50, Ill.
Peerless Electric Co., The, Warren, Ohio
Round Oak Co., Inc., Dowagiac, Mich.
Torrington Mfg. Co., The, Torrington, Conn.
Viking Air Conditioning Div., Cleveland 2, Ohio
Zink Co., John, Tulsa, Okla.

Draft Booster

Breese Burners, Inc., Santa Fe, N. M.

Duct

Brumme Mfg. Co., Bloomington, Ill.
Brundage Co., The, Kalamazoo, Mich.
Buffalo Forge Co., Buffalo, N. Y.
Conn-State Furnace Co., Bridgeport, Conn.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Excelsior Steel Furnace Co., The, Chicago, Ill.
Flexible Tubing Corp., Guilford, Conn. (Fabric coated)
Grainger, Inc., W. W., Chicago, Ill.
Grand Island Furnace & Supply Co., Grand Island, Nebr.
McLarty Systems, Battle Creek, Mich.
Martin Fan & Blower Co., Inc., Chicago 50, Ill.
New Aire Blower Co., Inc., Royal Oak, Mich.
Norwalk Air Conditioning Corp., The, So. Norwalk, Conn.
Radex Corp., Chicago 14, Ill.
Torrington Mfg. Co., The, Torrington, Conn.
Trane Co., The, La Crosse, Wisc.
Wing Mfg. Co., L. J., Linden, N. J.

Heat Extractors

Lepick Heater Co., Seattle 4, Wash.

Induced Draft

American Blower Corp., Dearborn, Mich.
American Fdry. & Furnace Co., Bloomington, Ill.
Brumme Mfg. Co., Bloomington, Ill.
Buffalo Forge Co., Buffalo, N. Y.
Clarage Fan Co., Kalamazoo, Mich.
Conn-State Furnace Co., Bridgeport, Conn.
Eclipse Fuel Eng. Co., Rockford, Ill.
General Blower Co., Morton Grove, Ill.
Grainger, Inc., W. W., Chicago 12, Ill.
Jan Air, Inc., Richmond, Ill.
Kisco Boiler & Eng. Co., St. Louis 4, Mo.
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
Majestic Co., Inc., The, Huntington, Ind.
Martin Fan & Blower Co., Inc., Chicago 50, Ill.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Fuel Conservation Co., Inc., White Plains, N. Y.
National Heater Co., Inc., St. Paul 4, Minn.
North American Mfg. Co., The, Cleveland 5, Ohio
Quickdraft Co., Canton 3, Ohio
Quiet Automatic Burner Corp., Newark 4, N. J.
Redmond Co., Inc., Owosso, Mich.

Sturtevant Div., Boston 36, Mass.
Therm Gas Generator Co., Inc., Seattle, Wash.
Tjernlund Mfg. Co., St. Paul 14, Minn.
Torrington Mfg. Co., Torrington, Conn.
Viking Mfg. Corp., Cleveland, Ohio
Wing Mfg. Co., L. J., Linden, N. J.

Oil Burner, Air Impellers

Cary Mfg. Co., Waupaca, Wisc.
Clarage Fan Co., Kalamazoo, Mich.
Clayton Mfg. Co., El Monte, Calif.
General Blower Co., Morton Grove, Ill.
Jan-Air, Inc., Richmond, Ill.
Lau Blower Co., The, Dayton 7, Ohio
Master Appliance Mfg. Co., Racine, Wisc.
Mechanical Prods. Co., Seattle 4, Wash.
Revcor, Chicago 30, Ill.
Torrington Mfg. Co., The, Torrington, Conn.

Warm Air Heating

Air Controls, Inc., Cleveland, Ohio
Airborne Industries, Inc., Minneapolis 11, Minn.
American Fdry. & Furnace Co., Bloomington, Ill.
American Machine Products, Marshalltown, Iowa
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Auburn Burner Co., Auburn, Ind.
Bard Mfg. Co., Bryan, Ohio
Bayley Blower Co., Milwaukee 14, Wisc.
Berger Furnace Co., Pittsburgh 6, Pa.
Bishop & Babcock Mfg. Co., Cleveland 14, Ohio
Brundage Co., Kalamazoo, Mich.
Buffalo Forge Co., Buffalo, N. Y.
Campbell Heating Co., Des Moines 17, Ia.
Cary Mfg. Co., Waupaca, Wisc.
Clarage Fan Co., Kalamazoo, Mich.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Connelley Co., St. Louis 3, Mo.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Corlett-Turner, Chicago 24, Ill.
Dowagiac Steel Furnace Co., Dowagiac, Mich.
Forest City Foundries Co., Cleveland 13, Ohio
Front Rank Mfg. Co., St. Louis 4, Mo.
Furblo Co., Hermansville, Mich.
General Blower Co., Morton Grove, Ill.
General Heating Prods. Co., Philadelphia, Pa.
Grainger, Inc., W. W., Chicago 12, Ill.
Green Colonial Furnace Co., Des Moines, Iowa
International Oil Burner Co., St. Louis 10, Mo.
Lau Blower Co., The, Dayton 7, Ohio
Lennox Furnace Co., Marshalltown, Iowa
Martin Fan & Blower Co., Inc., Chicago 50, Ill.
Mayne Prod. Co., Dayton 2, Ohio
McClarty Systems, Battle Creek, Mich.
Meyer Furnace Co., The, Peoria, Ill.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Heater Co., Inc., St. Paul 4, Minn.
Niagara Furnace Div., Cleveland 13, Ohio
Peerless Electric Co., The, Warren, Ohio
Premier Furnace Co., Dowagiac, Mich.
Queen Stove Works, Inc., Albert Lea, Minn.
Radex Corp., Chicago 14, Ill.
Redmond Co., Inc., Owosso, Mich.
Revcor, Chicago 30, Ill.
Round Oak Co., Inc., Dowagiac, Mich.
Standard Heating Eqpt. Co., Waterloo, Iowa
Tjernlund Mfg. Co., St. Paul 14, Minn.
Torrington Mfg. Co., The, Torrington, Conn.
Trane Co., The, La Crosse, Wisc.
U. S. Air Conditioning Corp., Minneapolis 14, Minn.
Universal Electric Co., Owosso, Mich.
Utility Fan Corp., Los Angeles 1, Calif.
Western Blower Co., Seattle 4, Wash.
Williamson Heater Co., Cincinnati, Ohio
Wing Mfg. Co., L. J., Linden, N. J.

Filters, Strainers

Air, Cleanable

Air-Maze Corp., Cleveland 28, Ohio
American Air Filter Co., Inc., Louisville, Ky.
Besser Metal Prods., Charlottle, N. C.
Cuno Eng. Corp., Meriden, Conn.
Goodyear Tire & Rubber Co., Inc., Akron, Ohio
Kraissl Co., The, Hackensack, N. J.
Maid-O-Mist, Inc., Chicago 41, Ill.
Research Prods. Corp., Madison 10, Wisc.
Sarco Co., Inc., New York 1, N. Y.

Air, Electrostatic

Air-Maze Corp., Cleveland 28, Ohio
American Air Filter Co., Inc., Louisville, Ky.
Besser Metal Prods. Corp., Charlotte 4, N. C.
Radex Corp., Chicago 14, Ill.
Small Motors, Inc., Chicago 14, Ill.
Sturtevant Div., Boston 36, Mass.
Trion, Inc., McKees Rocks, Pa.

Air, Non-Renewable

Air-Maze Corp., Cleveland 28, Ohio
American Air Filter Co., Inc., Louisville, Ky.
Bowser, Inc., Fort Wayne, Ind.
Cuno Eng. Corp., Meriden, Conn.
Drico Industrial Corp., New York 1, N. Y.
Filtrex Co., New York 17, N. Y.
Glasfloss Div., New York 17, N. Y.
Harvey, Inc., Sid, Valley Stream, N. Y.
Owens-Corning Fiberglas Corp., Toledo 1, Ohio
Purolator Prod., Inc., Rahway, N. J.
Research Prods. Corp , Madison 10, Wisc.
Universal Air Filter Corp., Duluth 2, Minn.
Wilson & Co., Inc., Chicago 9, Ill.

Air, Renewable

American Air Filter Co., Inc., Louisville, Ky.
Cuno Eng. Corp., Meriden, Conn.
Research Prods. Corp., Madison 10, Wisc.

Feed or Boiler Water

Bowser, Inc., Fort Wayne, Ind.
Commercial Filters Corp., Melrose 76, Mass.
Cuno Eng. Corp., Meriden, Conn.
General Controls Co., Glendale 1, Calif.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Kraissl Co., The, Hackensack, N. J.
Oil Heating Economy Corp., East Boston, Mass.
Sarco Co., Inc., New York 1, N. Y.
Staples & Pfeiffer, San Francisco 7, Calif.
Sterling, Inc., Milwaukee 12, Wisc.
Stewart Oil Burner Co., Hanover, Pa.

Nozzle

Delavan Mfg. Co., W. Des Moines, Iowa

Oil, Cartridge

Anderson Brass Co., Detroit 8, Mich.
Auto-Flo Corp., Detroit 27, Mich.
Bowser, Inc., Fort Wayne, Ind.
Burn-Rite Prods. Co., Yonkers 2, N. Y.
Commercial Filters Corp., Melrose 76, Mass.
Cuno Eng. Corp., Meriden, Conn.
Eclipse Fuel Eng. Co., Rockford, Ill.
Eddington Metal Specialty Co., Eddington, Pa.
Fram Corp., Providence 16, R. I.
General Filters, Inc., Novi, Mich.
Harvey, Inc., Sid, Valley Stream, N. Y.
Industrial Supply Inc., Cohoes, N. Y.
Klemm Automotive Prods. Co., Chicago 47, Ill.
Marietta Metal Prods. Corp., Marietta, Pa.
Marquart Mfg. Co., Oakland, Calif.
Morse-Smith-Morse Co., Watertown, Mass.
Pilgrim Oil Burner Co., Hartford, Conn.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Purolator Prod., Rahway, N. J.
Rega Mfg. Co., Rochester 20, N. Y.
Sparkler Mfg. Co., Mundelein, Ill.
Tool Industries, Inc., Detroit 23, Mich.

Oil, Kits with Tank Valve

Anderson Brass Co., Detroit 8, Mich.
Eddington Metal Specialty Co., Eddington, Pa.

Oil, Metal Mesh

A-P Controls Corp., Milwaukee, Wisc.
Air-Maze Corp., Cleveland 28, Ohio
Anthony Co., Long Island City 1, N. Y.
Bowser, Inc., Fort Wayne, Ind.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Cuno Eng. Corp., Meriden, Conn.
Eddington Metal Specialty Co., Eddington, Pa.
Ellcon Co., New York 7, N. Y.
General Controls Co., Glendale 1, Calif.
General Filters, Inc., Novi, Mich.
Harsch & Co., H., Maplewood, N. J.

Hauck Mfg. Co., Brooklyn 15, N. Y.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Kraissl Co., The, Hackensack, N. J.
Lammert & Mann Co., Chicago 12, Ill.
Marvel Eng. Co., Chicago, Ill.
Monarch Mfg. Works, Inc., Philadelphia 34, Pa.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Purolator Prod. Inc., Rahway, N. J.
Sarco Co., Inc., New York 1, N. Y.
Schurs Oil Burner Co., Los Angeles 1, Calif.
Smith Corp., A. O., Los Angeles 22, Calif.
Staples & Pfeiffer, San Francisco 7, Calif.
Sterling, Inc., Milwaukee 12, Wisc.
Stewart Oil Burner Co., Hanover, Pa.
Unifilter Co., Farmington, Mich.
Wilgus Mfg. Co., Los Angeles 21, Calif.

Oil, Metal Slot

Bowser, Inc., Ft. Wayne, Ind.
Cuno Eng. Corp., Meriden, Conn.
Delavan Mfg. Co., W. Des Moines, Iowa
Hauck Mfg. Co., Brooklyn 15, N. Y.
Morse-Smith-Morse Co., Watertown 72, Mass.
Purolator Prod., Inc., Rahway, N. J.
Sarco Co., Inc., New York 1, N. Y.

Oil, Throw-Away

Bowser, Inc., Ft. Wayne, Ind.
Cuno Eng. Corp., Meriden, Conn.
Eddington Metal Specialty Co., Eddington, Pa.
Industrial Supply, Inc., Cohoes, N. Y.
Klemm Automotive Prods. Co., Chicago 47, Ill.
Marquart Mfg. Co., Oakland, Calif.
Purolator Prods., Inc., Rahway, N. J.
Sparkler Fueloil Filters, Mundelin, Ill.

Strainers, #5, #6 Oil

Ace Eng. Co., Chicago 8, Ill.
Anderson Co., V. D., Cleveland 2, Ohio
Anthony Co., Long Island City 1, N. Y.
Bowser, Inc., Ft. Wayne, Ind.
Cash Valve Mfg. Corp., A. W., Decatur, Ill.
Clark Mfg. Co., Cleveland 14, Ohio
Cuno Eng. Corp., Meriden, Conn.
Eclipse Fuel Eng. Co., Rockford, Ill.
Eddington Metal Specialty Co., Eddington, Pa.
Ellcon Co., The, New York 7, N. Y.
General Controls Co., Glendale 1, Calif.
General Filters, Inc., Novi, Mich.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Kraissl Co., The, Hackensack, N. J.
Lammert & Mann Co., Chicago 12, Ill.
Morrison Bros. Co., Dubuque, Iowa
Mueller Steam Specialty Co., Inc., Long Island City 1, N. Y.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Purolator Prods., Inc., Rahway, N. J.
Ray Oil Burner Co., San Francisco 12, Calif.
Sarco Co., Inc., New York 1, N. Y.
Schurs Oil Burner Co., Los Angeles 1, Calif.
Sheffler-Gross Co., Philadelphia, Pa.
Staples & Pfeiffer, San Francisco 7, Calif.
Wilgus Mfg. Co., Los Angeles 21, Calif.
Wooley Co., E. L., Pawtucket, R. I.

Strainers, Bulk Plant

Anderson Co., V. D., Cleveland 2, Ohio
Anthony Co., Long Island City 1, N. Y.
Bowser, Inc., Ft. Wayne, Ind.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Cash Valve Mfg. Co., A. W., Decatur, Ill.
Clark Mfg. Co., Cleveland 14, Ohio
Cuno Eng. Corp., Meriden, Conn.
Ellcon Co., New York 7, N. Y.
Erie Meter Systems, Inc., Erie, Pa.
General Filters, Inc., Detroit 23, Mich.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Kraissl Co., The, Hackensack, N. J.
Morrison Bros. Co., Dubuque, Iowa
Mueller Steam Specialty Co., Inc., Long Island City 1, N. Y.
Purolator Prods., Inc., Rahway, N. J.
Sarco Co., Inc., New York 1, N. Y.
Sheffler-Gross Co., Philadelphia, Pa.
Smith Corp., A. O., Los Angeles 22, Calif.
Staples & Pfeiffer, San Francisco 7, Calif.
Warner Lewis Co., Tulsa 8, Okla.

Fire Fighting Equipment

American-La-France-Foamite Corp., Elmira, N. Y.
Pyrene Mfg. Co., Newark 8, N. J.

Fittings

Boiler

Bell & Gossett Co., Morton Grove, Ill.
Carlton Oil Burner Co., Hartford 3, Conn.
Crane Co., Chicago 40, Ill.
Grinnell Co., Inc., Providence 1, R. I.
Oil Eqpt. Mfg. Corp., New Haven, Conn.
Reliance Tubular Prods. Co., Cleveland, Ohio

Duct

Acme Mfg. Co., Philadelphia 36, Pa.
Adelta Mfg. Co., Inc., Philadelphia 46, Pa.
Anchor Div., New Albany, Ind.
Berger Furnace Co., Pittsburgh 6, Pa.
Buckeye Furnace Pipe Co., Columbus, Ohio
Chandler Co., Cedar Rapids, Ia.
Char-Gale Mfg. Co., Minneapolis, Minn.
Clayton & Lambert Mfg. Co., Louisville, Ky.
Conn-State Furnace Co., Bridgeport, Conn.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Excelsior Steel Furnace Co., The, Chicago 6, Ill.
Flexible Tubing Corp., Guilford, Conn. (Coated Fabric)
Fox, Inc., Chris, Trenton 10, N. J.
Gary Steel Prods. Co., Gary, Ind.
Inland Steel Prods. Co., Milwaukee 1, Wisc.
Johns-Manville Corp., New York 16, N. Y.
Lennox Furnace Co., The, Marshalltown, Iowa
Mueller Furnace Co., Milwaukee 15, Wisc.
Rockwell Co., W. S., Fairfield, Conn.
Specialty Sheet Metal Mfg. Co., Chicago, Ill.

Fill and Vent

Bell & Gossett Co., Morton Grove, Ill.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Chandler Co., Cedar Rapids, Iowa
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
Morse-Smith-Morse Co., Watertown 72, Mass.
Oil Eqpt. Mfg. Corp., New Haven, Conn.
O'Halloran Industries, Detroit 4, Mich.
Plastic Appliance Co., Philadelphia 31, Pa.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Remco Inc., Baltimore, Md.
Rhode Island Fittings Co., Providence, R. I.
Shand & Jurs Co., Berkeley 10, Calif.
Sicard, Minneapolis 8, Minn.
Universal Valve Co., Elizabeth, N. J.
Wheaton Brass Works, Union, N. J.

Hose

Buckeye Iron & Brass Works, Dayton 1, Ohio
Carlyle Rubber Co., New York 7, N. Y.
Goodall Rubber Co., Trenton 4, N. J.
Goodyear Tire & Rubber Co., Inc., Akron, Ohio
Hewitt Rubber Div., Buffalo 5, N. Y.
Morris Coupling & Clamp Co., Elwood City, Pa.
Philadelphia Valve Co., Philadelphia, Pa.
Scovill Mfg. Co., Waterbury 20, Conn.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Weatherhead Co., The, Cleveland 8, Ohio

Pipe

Anderson Brass Co., Detroit 8, Mich.
Barco Mfg. Co., Barrington, Ill.
Buckeye Iron & Brass Works, Dayton 1, Ohio
C-S Brass Mfg. Co., New York 23, N. Y.
Capitol Mfg. & Supply Co., Columbus, Ohio
Chase Brass & Copper Co., Waterbury 20, Conn.
Conn-State Furnace Co., Bridgeport, Conn.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Couplings Co., Chicago 16, Ill.
Crane Co., Chicago 40, Ill.
Ever-Tite Coupling Co., Inc., New York 19, N. Y.
Excelsior Steel Furnace Co., The, Chicago 6, Ill.
General Fittings Co., Providence 5, R. I.
Grinnell Co., Inc., Providence 1, R. I.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
Inland Steel Prods. Co., Milwaukee 1, Wisc.
Johns-Manville Corp., New York 16, N. Y.
Leggitt Co., S. H., Marshall, Mich.
Lincoln Brass Works, Inc., Detroit 16, Mich.

Madden Brass Prods. Co., Chicago 19, Ill. (Brass)
Malleable Iron Fittings Co., Branford, Conn.
Oil Eqpt. Mfg. Corp., New Haven, Conn.
Reliance Tubular Prods. Co., Cleveland 8, Ohio
Span Brass Mfg. Co., Inc., Otsego, Mich.
Universal Brass Corp., Arlington, N. J.
Weatherhead Co., The, Cleveland 8, Ohio

Tank

American Brass Co., Waterbury 20, Conn.
Buckeye Iron & Brass Works, Dayton 1, Ohio
C-S Brass Mfg. Co., New York 23, N. Y.
Ever-Tite Coupling Co., Inc., New York 19, N. Y.
Grinnell Co., Inc., Providence 1, R. I.
Kennedy Tank & Mfg. Co., Inc., Indianapolis, Ind.
Lincoln Brass Works, Inc., Detroit 16, Mich.
McDonald Mfg. Co., A. Y., Dubuque, Iowa
Me. Gauge Co., New Haven, Conn.
Morrison Bros., Dubuque, Iowa
O'Halloran Industries, Detroit 4, Mich.
Oil Eqpt. Mfg. Corp., New Haven, Conn.
Reliance Tubular Prods. Co., Cleveland 8, Ohio
Shand & Jurs Co., Berkeley 10, Calif.
Southern Tank & Mfg., Inc., Owensboro, Ky.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Therm Gas Generator Co., Inc., Seattle, Wash.
Universal Brass Corp., Arlington, N. J.
Universal Valve Co., Elizabeth, N. J.
Weatherhead Co., The, Cleveland 8, Ohio

Tubing, Compression

American Brass Co., Waterbury 20, Conn.
American Mfg. Co., Inc., Hartford, Conn.
Anderson Brass Co., Detroit 8, Mich.
Best Brass Co., Marshall, Mich.
C-S Brass Mfg. Co., New York 23, N. Y.
Carlton Oil Burner Co., Hartford 3, Conn.
Chase Brass & Copper Co., Waterbury 20, Conn.
Couplings Co., Chicago 16, Ill.
Grinnell Co., Inc., Providence 1, R. I.
Hahn Co., A., Hartford, Conn.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
Leggitt Co., S. H., Marshall, Mich.
Lincoln Brass Works, Inc., Detroit 16, Mich.
Madden Brass Prods. Co., Chicago 19, Ill.
Pilgrim Oil Burner Co., Hartford, Conn.
Reading Brass Co., Hillsdale, Mich.
Reliance Tubular Prods. Co., Cleveland 8, Ohio
Rockford Brass Works, Rockford, Ill.
Schoenberger Co., The W. J., Cleveland 5, Ohio
Scovill Mfg. Co., Waterbury 20, Conn.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Therm Gas Generator Co., Inc., Seattle, Wash.
Universal Brass Corp., Arlington, N. J.
Universal Valve Co., Elizabeth, N. J.
Wayne Brass Co., Inc., Fort Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio

Tubing, Flare

American Brass Co., Waterbury 20, Conn.
American Mfg. Co., Inc., Hartford, Conn.
Anderson Brass Co., Detroit 8, Mich.
Barridon Oil Burner Corp., Hartford, Conn.
Best Brass Co., Marshall, Mich.
C-S Brass Mfg. Co., New York 23, N. Y.
Carlton Oil Burner Co., Hartford 3, Conn.
Chase Brass & Copper Co., Waterbury 20, Conn.
Couplings Co., Chicago 16, Ill.
Grinnell Co., Inc., Providence 1, R. I.
Hahn Co., A., Hartford, Conn.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
Leggitt Co., S. H., Marshall, Mich.
Lincoln Brass Works, Inc., Detroit, Mich.
Madden Brass Prod. Co., Chicago 19, Ill.
Pilgrim Oil Burner Co., Hartford, Conn.
Reading Brass Co., Hillsdale, Mich.
Reliance Tubular Prod. Co., Cleveland 8, Ohio
Remco Inc., Baltimore, Md.
Rockford Brass Works, Rockford, Ill.
Schoenberger Co., The W. J., Cleveland 5, Ohio
Span Brass Mfg. Co., Inc., Otsego, Mich.
Therm Gas Generator Co., Inc., Seattle, Wash.
Universal Brass Corp., Arlington, N. J.
Wayne Brass Co., Inc., Fort Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio

Tubing, Sweat

American Brass Co., Waterbury 20, Conn.
Chase Brass & Copper Co., Waterbury 20, Conn.
Crane Co., Chicago 40, Ill.
General Fittings Co., Providence 5, R. I.
Grinnell Co., Providence 1, R. I.
Hahn Co., A., Hartford, Conn.
Reliance Tubular Prod. Co., Cleveland 8, Ohio
Rockford Brass Works, Rockford, Ill.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Wayne Brass Co., Inc., Fort Wayne, Ind.

Furnaces

Commercial

Air Conditioning Eng. Co., Cambridge 41, Mass.
Altherm, Inc., New York 21, N. Y.
American Furnace Co., St. Louis 10, Mo.
American Fdry. & Furnace Co., Bloomington, Ill.
Anchor Div., New Albany, Ind.
Andrews Htg. Co., Minneapolis 14, Minn.
Arcweld Mfg. Co., Inc., Seattle 99, Wash.
Armstrong Furnace Co., Columbus 8, Ohio
Auburn Fdry., Inc., Auburn, Ind.
Barton Prods., Inc., Wheaton, Ill.
Beck Eng. Combustion Ko., St. Louis 6, Mo.
Besser Metal Prods. Corp., Charlotte, N. C.
Billow Corp., Chicago 6, Ill.
Bryant Heater Div., Cleveland, Ohio
Campbell Co., E. K., Kansas City, Mo.
Campbell Heating Co., Des Moines 17, Iowa
Cary Mfg. Co., Waupaca, Wisc.
Century Eng. Corp., Cedar Rapids, Iowa
Chandler Co., Cedar Rapids, Iowa
Chicago Steel Furnace Co., Chicago 17, Ill.
Chimney Furnace Co., Rockville, Md.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Connelley Co., St. Louis 3, Mo.
Cox Mfg. Co., Ridgeville, Ind.
Delta Htg. Corp., Trenton 8, N. J.
Domestic Mfg. Co., Seattle, Wash.
Dravo Corp., Pittsburgh 22, Pa.
Dualtron Co., The, Pittsburgh 29, Pa.
Eclipse Fuel Eng. Co., Rockford, Ill.
Floral City Heater Co., Monroe, Mich.
Gross-Aire Mfg. Co., Overland 14, Mo.
Heat Controller, Inc., Manitou Beach, Mich.
Heil Co., The, Milwaukee 1, Wis.
Henry Furnace Co., Medina, Ohio
Illinois Iron & Bolt Co., Carpentersville, Ill.
Jackson & Church Co., Saginaw, Mich.
Johnson Heater Corp., Chelsea, Mass.
Lee Corp., Wilmington, Del.
Lennox Furnace Co., Marshalltown, Iowa
Lientz Mfg. Co., B. P., Kansas City, Mo.
Majestic Co., Inc., The, Huntington, Ind.
Meyer Furnace Co., Peoria 2, Ill.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Heater Co., Inc., St. Paul 4, Minn.
Northwest Fdry. & Furnace Co., Portland 2, Ore.
Norwalk Airconditioning Corp., The, So. Norwalk, Conn.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Olson & Co., A. A., Canfield, Ohio
Parks-Cramer Co., Fitchburg, Mass.
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Prat-Daniel Corp., So. Norwalk, Conn.
Premier Furnace Co., Dowagiac, Mich.
Quiet-Automatic Burner Corp., Newark 4, N. J.
Ray Oil Burner Co., San Francisco 12, Calif.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Rockwell Co., W. S., Fairfield, Conn.
Rossoe Mfg. Co., Seattle 9, Wash.
Round Oak Co., Inc., Dowagiac, Mich.
Sandberg Mfg. Co., Portland 10, Ore.
Siebring Mfg. Co., George, Iowa
Stewart Oil Burner Co., Hanover, Pa.
Superior Furnace & Mfg. Co., Plymouth, Mich.
Syncromatic Corp., Watertown, Wisc.
Tjernlund Mfg. Co., St. Paul 14, Minn.
U. S. Machine Div., Lebanon, Ind.
U. S. Rad. Corp., Detroit 26, Mich.
Waterman-Waterbury Co., The, Minneapolis 13, Minn.
Wayne Home Eqpt. Co., Inc., Fort Wayne, Ind.
Weatherall Eng. Inc., Providence, R. I.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.

Domestic Coal (to 200,000 Btu)

American Fdry. & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis 10, Mo.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anchor Div., New Albany, Ind.
Armstrong Furnace Co., Columbus 8, Ohio
Auburn Fdry., Inc., Auburn, Ind.
Bard Mfg. Co., Bryan, Ohio
Beck Eng. Combustion Ko., St. Louis 6, Mo.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Campbell Heating Co., Des Moines 17, Iowa
Chandler Co., Cedar Rapids, Iowa
Combustioneer Div., Springfield, Ohio
Connelley Co., St. Louis 3, Mo.
Crane Co., Chicago 40, Ill.
Dornback Furnace & Fdry. Co., Cleveland 8, Ohio
Dowagiac Steel Furnace Co., Dowagiac, Mich.
Electric Furnace-Man, Inc., Emmaus, Pa.
Ex Cel Co., Dowagiac, Mich.
Farquhar Furnace Co., The, Wilmington, Ohio
Floral City Heater Co., Monroe, Mich.
Front Rank Mfg. Co., St. Louis 4, Mo.
General Machine Co., Inc., Emmaus, Pa.
Green Colonial Furnace Co., Des Moines, Iowa
Gross-Aire Mfg. Co., St. Louis 14, Mo.
Hall-Neal Furnace Co., Indianapolis, Ind.
Henry Furnace Co., Medina, Conn.
Hess Co., The, Chicago 50, Ill.
Holland Furnace Co., Holland, Mich.
Home Furnace Co., Holland, Mich.
Home Furnace & Fdry. Co., Coldwater, Mich.
Illinois Iron & Bolt Co., Carpentersville, Ill.
International Heater Co., Utica, N. Y.
Jackson & Church Co., Saginaw, Mich.
K. G. Mfg. Corp., Center Valley, Pa.
Keith Furnace Co., Des Moines, Iowa
Lennox Furnace Co., Marshalltown, Iowa
Majestic Co., Inc., The, Huntington, Ind.
Mayflower Air-Conditioners, Inc., St. Paul, Minn.
Meyer Furnace Co., Peoria 2, Ill.
Montag Stove & Furnace Works, Portland 17, Ore.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Niagara Furnace Div., Cleveland 13, Ohio
Norge Heat Div., Kalamazoo, Mich.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Premier Furnace Co., Dowagiac, Mich.
Round Oak Co., Inc., Dowagiac, Mich.
Rybolt Heater Co., The, Ashland, Ohio
Sandberg Mfg. Co., Portland, Ore.
Schill Mfg. Co., The, Crestline, Ohio
Souther Iron Co., E. E., St. Louis 20, Mo.
Stewart Oil Burner Co., Hanover, Pa.
Synchromatic Corp., Watertown, Wisc.
Thatcher Furnace Co., Garwood, N. J.
Toridheet Div., Cleveland 2, Ohio
U. S. Machine Div., Lebanon, Ind.
U. S. Rad. Corp., Detroit 26, Mich.
Waterman-Waterbury Co., The, Minneapolis 13, Minn.
Wayne Home Eqpt. Co., Inc., Fort Wayne 4, Ind.
Williamson Heater Co., The, Cincinnati 9, Ohio

Domestic Gas (to 200,000 Btu)

Acme Heating Div., W. Hartford 10, Conn.
Airflame, Inc., Waukegan, Ill.
Airtemp Div., Dayton 1, Ohio
Airwasher Corp., Eaton Rapids, Mich.
Altherm, Inc., New York 21, N. Y.
American Fdry. & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis 10, Mo.
American Ideal-Aire Corp., Westbury, N. Y.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anchor Div., New Albany, Ind.
Armstrong Furnace Co., Columbus 8, Ohio
Auburn Burner Co., Auburn, Ind.
Auburn Fdry., Inc., Auburn, Ind.
Automatic Firing Corp., St. Louis, Mo.
Barber Gas Burner Co., The, Cleveland 14, Ohio
Bard Mfg. Co., Bryan, Ohio
Barton Products, Inc., Wheaton, Ill.
Beck Eng. Combustion Co., St. Louis 6, Mo.
Berger Furnace Co., Pittsburgh 6, Pa.
Besser Metal Prods. Corp., Charlotte, N. C.
Brandenburg Industries, Inc., Baltimore 9, Md.
Bryant Air Conditioning Corp., Philadelphia 23, Pa.
Bryant Heater Div., Cleveland, Ohio
Campbell Heating Co., Des Moines 17, Iowa
Century Eng. Corp., Cedar Rapids, Iowa
Chandler Co., Cedar Rapids, Iowa
Chicago Steel Furnace Co., Chicago 17, Ill.
Chimney Furnace Co., Rockville, Md.
Coleman Co., Inc., Wichita, Kans.
Combustioneer Div., Springfield, Ohio
Conco Eng. Works, Mendota, Ill.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Connelley Co., St. Louis 3, Mo.
Cox Mfg. Co., Ridgeville, Ind.
Crane Co., Chicago 40, Ill.
Delco Appliance Div., Rochester, N. Y.
Delta Heating Corp., Trenton 8, N. J.
DeSoto Oil Burner Co., York, Pa.
Dornback Furnace & Fdry. Co., Cleveland 8, Ohio
Dowagiac Steel Furnace Co., Dowagiac, Mich.
Daultron Co., The, Pittsburgh 29, Pa.
Ducane Heating Corp., Lincoln Park, N. J.
Ex Cel Co., Dowagiac, Mich.
Farquhar Furnace Co., The, Wilmington, Ohio
Firewel Co., Inc., The, Buffalo 25, N. Y.
Floral City Heater Co., Monroe, Mich.
Front Rank Mfg. Co., St. Louis 4, Mo.
Furblo Co., Hermansville, Mich.
General Automatic Products Corp., Baltimore, Md.
General Electric Co., Bloomfield, N. J.
Gillen Co., J. L., Detroit 28, Mich.
Glasby Mfg. Co., Inc., J. P., Belleville 9, N. J.
Green Colonial Furnace Co., Des Moines, Iowa
Gross-Aire Mfg. Co., St. Louis 14, Mo.
Hall-Neal Furnace Co., Indianapolis, Ind.
Heat Controller, Inc., Manitou Beach, Mich.
Heating Specialties, Inc., Baltimore 29, Md.
Heil Co., The, Milwaukee 1, Wisc.
Henry Furnace Co., Medina, Ohio
Hess Co., The, Chicago 50, Ill.
Holland Furnace Co., Holland, Mich.
Home Furnace & Fdry. Co., Coldwater, Mich.
Illinois Iron & Bolt Co., Carpentersville, Ill.
International Heater Co., Utica, N. Y.
International Oil Burner Co., St. Louis 10, Mo.
International Sales Co., San Francisco, Calif.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Jackson & Church Co., Saginaw, Mich.
Jettronaire, Inc., Springdale, Pa.
Johnson Heater Corp., Chelsea, Mass.
Kaustine Furnace & Tank Corp., Perry, N. Y.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Lennox Furnace Co., Marshalltown, Iowa
Little Burner Co., Inc., H. C., San Rafael, Calif.
Luty Furnace Mfg. Co., Detroit 21, Mich.
Magic Chef, Inc., St. Louis 10, Mo.
Majestic Co., Inc., The, Huntington, Ind.
Marietta Metal Prods. Corp., Marietta, Pa.
Mayflower Air-Conditioners, Inc., St. Paul 6, Minn.
Meyer Furnace Co., Peoria 2, Ill.
Morrison Steel Prods., Inc., Buffalo 7, N. Y.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Niagara Furnace Div., Cleveland 13, Ohio
Norge Heat Div., Kalamazoo, Mich.
Norman Prods. Co., Columbus, Ohio
Norwalk Airconditioning Corp., The, So. Norwalk, Conn.
O'Halloran Industries, Detroit 4, Mich.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Patten Co., J. V., Sycamore, Ill.
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Pennsylvania Furnace & Iron Co., Warren, Pa.
Perfection Stove Co., Cleveland 4, Ohio
Premier Furnace Co., Dowagiac, Mich.
Radiant-Aire Corp., Michigan City, Ind.
Rheem Mfg. Co., Chicago 29, Ill.
Richmond Rad. Co., Metuchen, N. J.
Roberts-Gordon Appliance Corp., Buffalo 6, N. Y.
Round Oak Co., Inc., Dowagiac, Mich.
Rybolt Heater Co., The, Ashland, Ohio
Schill Mfg. Co., The, Crestline, Ohio
Silent Automatic Prods., Jackson, Mich.
Smith Corp., A. O., Milwaukee, Wis.
Souther Iron Co., E. E., St. Louis 20, Mo.
Steel City Furnace Corp., Springdale, Pa.
Stewart Oil Burner Co., Hanover, Pa.
Superior Furnace & Mfg. Co., Plymouth, Mich.
Surface Combustion Corp., Toledo 1, Ohio
Synchromatic Corp., Watertown, Wisc.
Thatcher Furnace Co., Garwood, N. J.
Thermo-Prods., Inc., N. Judson, Ind.

Timken Silent Automatic Div., Jackson, Mich.
Tjerlund Mfg. Co., St. Paul 14, Minn.
Toridheet Div., Cleveland 2, Ohio
Turb-O-Tube Furnace, Inc., Buffalo 13, N. Y.
U. S. Machine Div., Lebanon, Ind.
U. S. Rad. Corp., Detroit 26, Mich.
Viking Mfg. Corp., Cleveland, Ohio
Waterman-Waterbury Co., The, Minneapolis 13, Minn.
Wayne Home Eqpt. Co., Inc., Fort Wayne 4, Ind.
Weatherall Eng. Inc., Providence, R. I.
Williams Automatic, Inc., White Plains, N. Y.
Williams Div., Bloomington, Ill.
Williamson Heater Co., The, Cincinnati 9, Ohio
Wisconsin Oil Burner Co., Madison 5, Wis.
York-Shipley, Inc., York, Pa.
Zink Co., John, Tulsa, Okla.

Domestic Oil (to 200,000 Btu)

Acme Heating Div., W. Hartford 10, Conn.
Air Conditioning Eng. Co., Cambridge 41, Mass.
Aire Director Mfg. Co., Seattle 9, Wash.
Airflame, Inc., Waukegan, Ill.
Airtemp Div., Dayton 1, Ohio
Airwasher Corp., Eaton Rapids, Mich.
Altherm, Inc., New York 21, N. Y.
American Fdry. & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis 10, Mo.
American Ideal-Aire Corp., Westbury, N. Y.
American Oil Co., Baltimore, Md.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anchor Div., New Albany, Ind.
Arcweld Mfg. Co., Inc., Seattle 99, Wash.
Armstrong Furnace Co., Columbus 8, Ohio
Auburn Burner Co., Auburn, Ind.
Auburn Fdry., Auburn, Ind.
Automatic Firing Corp., St. Louis, Mo.
Barber Gas Burner Co., The, Cleveland 14, Ohio
Bard Mfg. Co., Bryan, Ohio
Barton Products, Inc., Wheaton, Ill.
Beck Eng. Combustion Ko., St. Louis 6, Mo.
Berger Furnace Co., Pittsburgh 6, Pa.
Besser Metal Products Corp., Charlotte, N. C.
Bethlehem Fdry. & Machine Co., Bethlehem, Pa.
Beyer Oil Burner Co., Rosamond, Calif.
Bovee Furnace Works, Waterloo, Iowa
Brandenberg Industries, Inc., Baltimore 9, Md.
Brandes Co., Madison 4, Wisc.
Brown Steel Tank Co., Minneapolis 14, Minn.
Bryant Air Conditioning Corp., Philadelphia 23, Pa.
Bryant Corp., C. L., Cleveland 3, Ohio
Bryant Heater Div., Cleveland, Ohio
Burtchaell Heating Co., Portland 2, Ore.
Campbell Heating Co., Des Moines 17, Iowa
Cary Mfg. Co., Waupaca, Wisc.
Century Eng. Corp., Cedar Rapids, Iowa
Certified Furnace Co., St. Paul 4, Minn.
Chandler Co., Cedar Rapids, Iowa
Charter Oak Stove & Range Co., St. Louis 15, Mo.
Chicago Steel Furnace Co., Chicago 17, Ill.
Chimney Furnace Co., Rockville, Md.
Coleman Co., Inc., Wichita, Kans.
Combustioneer Div., Springfield, Ohio
Conco Eng. Works, Mendota, Ill.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Connelley Co., St. Louis 3, Mo.
Coroaire Heater Corp., Cleveland 15, Ohio
Cox Mfg. Co., Ridgeville, Ind.
Crane Co., Chicago 40, Ill.
Delco Appliance Div., Rochester, N. Y.
Delta Heating Corp., Trenton 8, N. J.
DeSoto Oil Burner Co., York, Pa.
Domestic Mfg. Co., Seattle, Wash.
Dornback Furnace & Fdry. Co., Cleveland 8, Ohio
Dowagiac Steel Furnace Co., Dowagiac, Mich.
Daultron Co., The, Pittsburgh 29, Pa.
Ducane Heating Corp., Lincoln Park, N. J.
Electric Furnace-Man, Inc., Emmaus, Pa.
Electro-Watt Industries, Inc., Salem, Ore.
Electro-Watt, Inc., Seattle 1, Wash.
Electrol Burner Mfg. Co., Inc., Rutherford, N. J.
Enico Products, Detroit 35, Mich.
Ex Cel Co., Dowagiac, Mich.
Farquhar Furnace Co., The, Wilmington, Ohio
Firewel Co., Inc., The, Buffalo 25, N. Y.
Floral City Heater Co., Monroe, Mich.
Front Rank Mfg. Co., St. Louis 4, Mo.
Furblo Co., Hermansville, Mich.
General Automatic Prods. Corp., Baltimore, Md.
General Electric Co., Bloomfield, N. J.
General Heating Prods. Co., Philadelphia, Pa.
General Machine Co., Inc., Emmaus, Pa.
Gilbert & Barker Mfg. Co., West Springfield, Mass.
Gillen Co., J. L., Detroit 28, Mich.
Glasby Mfg. Co., Inc., J. P., Belleville 9, N. J.
Green Colonial Furnace Co., Des Moines, Iowa
Greene Mfg. Co., A., Philadelphia, Pa.
Gross-Aire Mfg. Co., St. Louis, Mo.
Hall-Neal Furnace Co., Indianapolis, Ind.
Hart Heat Div., Peoria, Ill.
Harvey-Whipple, Inc., Springfield, Mass.
Heat Controller, Inc., Manitou Beach, Mich.
Heating Specialties, Inc., Baltimore 29, Md.
Heatlox Furnace, Inc., Tacoma, Wash.
Heil Co., The, Milwaukee 1, Wisc.
Henry Furnace Co., Medina, Ohio
Hess Co., The, Chicago 50, Ill.
Hess-Snyder Co., The, Massillon, Ohio
Holland Furnace Co., Holland, Mich.
Home Furnace Co., Holland, Mich.
Home Furnace & Fdry. Co., Coldwater, Mich.
Illinois Iron & Bolt Co., Carpentersville, Ill.
International Heater Co., Utica, N. Y.
International Oil Burner Co., St. Louis 10, Mo.
International Sales Co., San Francisco 24, Calif.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Jackson & Church Co., Saginaw, Mich.
Jettronaire, Inc., Springdale, Pa.
Johnson Heater Corp., Chelsea, Mass.
Johnson Co., S. T., Oakland, Calif.
Jungers Stove & Range Co., Grafton, Wisc.
K. G. Mfg. Corp., Center Valley, Pa.
Kaustine Co., Inc., Perry, N. Y.
Keith Furnace Co., Des Moines, Iowa
Kinsley Burner & Machine Co., Providence, R. I.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Laco Oil Burner Co., Inc., Griswold, Iowa
La Salle Oil Burner Co., Inc., Seattle 3, Wash.
Lennox Furnace Co., Marshalltown, Iowa
Little Burner Co., Inc., H. C., San Rafael, Calif.
Livingston, Inc., Marshall, Mich.
Loxaire Corp., Tacoma, Wash.
Luty Furnace Mfg. Co., Detroit 21, Mich.
McKee Air Conditioning Co., Minneapolis 12, Minn.
Magic Chef, Inc., St. Louis 10, Mo.
Majestic Co., Inc., The, Huntington, Ind.
Marietta Metal Prods. Corp., Marietta, Pa.
May Fuel Oil Corp., Baltimore 30, Md.
Mayflower Air-Conditioners, Inc., St. Paul 6, Minn.
Mechanical Prods. Co., Seattle 4, Wash.
Metromatic Mfg. Co., Everett 49, Mass.
Meyer Furnace Co., Peoria 2, Ill.
Montag Stove & Furnace Works, Portland 17, Ore.
Morrison Steel Prods., Inc., Buffalo 7, N. Y.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Mulkey Co., J. F., Detroit 10, Mich.
Niagara Furnace Div., Cleveland 13, Ohio
Norge Heat, Div., Kalamazoo, Mich.
Northwest Fdry. & Furnace Co., Portland 2, Ore.
Norwalk Airconditioning Corp., The, So. Norwalk, Conn.
O'Halloran Industries, Detroit 4, Mich.
Oil Eqpt. Laboratories, Inc., Elizabeth, N. J.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Oneida Heater Co., Inc., Oneida, N. Y.
Patten Co., J. V., Sycamore, Ill.
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Perfection Stove Co., Cleveland 4, Ohio
Petrol Oil Burner Mfg. Co., Inc., Malden 48, Mass.
Premier Furnace Co., Dowagiac, Mich.
Prentiss Wabers Products Co., Wisconsin Rapids, Wisc.
Preway, Inc., Wisconsin Rapids, Wisc.
Quick Furnace Co., Des Moines, Iowa
Quiet Automatic Burner Corp., Newark 4, N. J.
Radiant-Aire Corp., Michigan City, Ind.
Radiation Furnace Corp., Benton Harbor, Mich.
Radiant Utilities Corp., Brooklyn, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Rheem Mfg. Co., Chicago 29, Ill.
Richmond Radiator Co., Metuchen, N. J.
Rossoe Mfg. Co., Inc., Seattle, Wash.
Round Oak Co., Inc., Dowagiac, Mich.
Rybolt Heater Co., The, Ashland, Ohio
St. Louis Furnace Mfg. Co., St. Louis, Mo.
Sandberg Mfg. Co., Portland 10, Ore.
Schill Mfg. Co., The, Crestline, Ohio

Siebring Mfg. Co., George, Iowa
Silent Automatic Prods., Jackson, Mich.
Silent Sioux Corp., Orange City, Iowa
Smith Corp., A. O., Milwaukee, Wis.
Souther Iron Co., E. E., St. Louis 20, Mo.
Stainless Steel Prods. Co., St. Paul 4, Minn.
Steel City Furnace Corp., Springdale, Pa.
Stewart Oil Burner Co., Hanover, Pa.
Superior Furnace & Mfg. Co., Plymouth, Mich.
Surface Combustion Corp., Toledo 1, Ohio
Syncromatic Corp., Watertown 9, Wisc.
Thatcher Furnace Co., Garwood, N. J.
Therm Gas Generator Co., Inc., Seattle, Wash.
Thermo-Prods., Inc., North Judson, Ind.
Timken Silent Automatic Div., Jackson, Mich.
Tjernlund Mfg. Co., St. Paul 14, Minn.
Toridheet Div., Cleveland 2, Ohio
Tru-Heet Co., Trenton, N. J.
Tucker & Sons, Mfg., Tacoma 8, Wash.
Turb-O-Tube Furnace, Inc., Buffalo 13, N. Y.
XXth Century Heating & Ventilating Co., Akron 1, Ohio
U. S. Machine Div., Lebanon, Ind.
U. S. Radiator Corp., Detroit 26, Mich.
Utility Appliance Corp., Los Angeles 58, Calif.
Viking Mfg. Corp., Cleveland, Ohio
Volcano Burner Corp., New York 61, N. Y.
Waterman-Waterbury Co., The, Minneapolis 13, Minn.
Wayne Home Eqpt. Co., Inc., Fort Wayne 4, Ind.
Weatherall Eng., Inc., Providence, R. I.
Williams Automatic, Inc., White Plains, N. Y.
Williams Div., Bloomington, Ill.
Williamson Heater Co., The, Cincinnati 9, Ohio
Wisconsin Oil Burner Co., Madison 5, Wisc.
York-Shipley, Inc., York, Pa.

Furnace—Burner Units

Ceiling, Suspended

Air Conditioning Eng. Co., Cambridge 41, Mass.
Altherm, Inc., New York 21, N. Y.
American Furnace Co., St. Louis 10, Mo.
American Ideal-Aire Corp., Westbury, N. Y.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anchor Div., New Albany, Ind.
Anchor Stove & Range Co., New Albany, Ind.
Armstrong Furnace Co., Columbus 8, Ohio
Auburn Burner Co., Auburn, Ind.
Auburn Fdry., Inc., Auburn, Ind.
Bard Mfg. Co., Bryan, Ohio
Beck Eng. Combustion Ko., St. Louis 6, Mo.
Besser Metal Prods. Corp., Charlotte, N. C.
Bethlehem Fdry. & Machine Co., Bethlehem, Pa.
Bryant Heater Div., Cleveland, Ohio
Century Eng. Corp., Cedar Rapids, Ia.
Chicago Steel Furnace Co., Chicago 17, Ill.
Combustioneer Div., Springfield, Ohio
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Crane Co., Chicago 40, Ill.
Delco Appliance Div., Rochester 1, N. Y.
Delta Heating Corp., Trenton 8, N. J.
DeSoto Oil Burner Co., York, Pa.
Domestic Mfg. Co., Seattle, Wash.
Dravo Corp., Pittsburgh 22, Pa.
Electro-Watt Industries, Inc., Salem, Ore.
Esso Standard Oil Co., New York 19, N. Y.
Fluid Heat Div., Baltimore, Md.
Front Rank Mfg. Co., St. Louis 4, Mo.
General Automatic Prods. Corp., Baltimore, Md.
General Electric Co., Bloomfield, N. J.
Gilbert & Barker Mfg. Co., West Springfield, Mass.
Green Colonial Furnace Co., Des Moines, Iowa
Hall-Neal Furnace Co., Indianapolis, Ind.
Hart Heat Div., Peoria, Ill.
Harvey-Whipple, Inc., Springfield, Mass.
Heil Co., The, Milwaukee, Wisc.
Henry Furnace Co., Medina, Ohio
Herco Oilburner Corp., Lancaster, Pa.
International Heater Co., Utica, N. Y.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Jackson & Church Co., Saginaw, Mich.
Johnson Heater Corp., Chelsea, Mass.
Kaustine Furnace & Tank Corp., Perry, N. Y.
Kinsley Burner & Machine Co., Providence, R. I.
Kleer Kleen Mfg. Co., Oakland, Calif.
Ko-Z-Aire Prods., Inc., Red Oak, Iowa
Kresno-Stamm Mfg. Co., Palisades Park, N. J.
Lennox Furnace Co., Marshalltown, Iowa
Leeson Air Conditioning Corp., Detroit 27, Mich.
Little Burner Co., Inc., H. C., San Rafael, Calif.
Mechanical Products Co., Seattle 4, Wash.
Metrol Oil Burner Mfg. Co., Inc., Easthampton, Mass.
Meyer Furnace Co., Peoria 2, Ill.
Montag Stove & Furnace Works, Portland, Ore.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Heater Co., Inc., St. Paul 4, Minn.
Norge Heat Div., Kalamazoo, Mich.
Norman Prods. Co., Columbus, Ohio
Northwest Fdry. & Furnace Co., Portland 2, Ore.
Norwalk Airconditioning Corp., The, So. Norwalk, Conn.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Over Head Heaters, Inc., Detroit 26, Mich.
Pacific Oil Co., Fall River, Mass.
Patten Co., J. V., Sycamore, Ill.
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Perfection Stove Co., Cleveland 4, Ohio
Petro, Cleveland 11, Ohio
Prat-Daniel Corp., So. Norwalk, Conn.
Prentiss Waber Prods. Co., Wisconsin Rapids, Wisc.
Quiet Automatic Burner Corp., Newark 4, N. J.
Red Triangle Heater Co., Wausau, Wisc.
Reif-Rexoil, Inc., Buffalo 3, N. Y.
Rossoe Mfg. Co., Inc., Seattle, Wash.
Round Oak Co., Inc. of Indiana, Dowagiac, Mich.
The Rybolt Heater Co., Ashland, Ohio
Sandberg Mfg. Co., Portland 10, Ore.
Standard Arcoil Corp., Newark 8, N. J.
Superior Furnace & Mfg. Co., Plymouth, Mich.
Surface Combustion Corp., Toledo, Ohio
Tjernlund Mfg. Co., St. Paul 14, Minn.
Toridheet Div., Cleveland 11, Ohio
U. S. Rad. Corp., Detroit 26, Mich.
Viking Mfg. Corp., Cleveland 14, Ohio
Viking Oil Co., Milwaukee, Wisc.
Volcano Burner Corp., New York 61, N. Y.
Waterman-Waterbury Co., Minneapolis, Minn.
Wayne Home Eqpt. Co., Inc., Ft. Wayne, Ind.
Weatherall Eng. Inc., Providence, R. I.
Williams Div., Bloomington, Ill.
Williamson Heater Co., Cincinnati 9, Ohio
Wisconsin Oil Burner Co., Madison 5, Wis.
York-Shipley, Inc., York, Pa.

Floor Furnaces

(See listing on page 39 under Space Heaters, Oilfired, Floor Furnaces)

Forced Air, Atomizing Vertical Rotary

Marietta Metal Prods. Corp., Marietta, Pa.

Forced Air, High Pressure Burner

Acme Heating Div., W. Hartford 10, Conn.
Air Conditioning Eng. Co., Cambridge 41, Mass.
Aire Director Mfg. Co., Seattle 9, Wash.
Airflame, Inc., Waukegan, Ill.
Airtemp Div., Dayton 1, Ohio
Airtherm Mfg. Co., St. Louis 10, Mo.
Alan Distributors, Inc., Worcester, Mass.
Altherm, Inc., New York 21, N. Y.
American Boiler & Fdry. Co., Milan, Mich.
American Fdry. & Furnace Co., Bloomington, Ill.
American Ideal-Aire Corp., Westbury, N. Y.
American Oil Co., Baltimore, Md.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anchor Div., New Albany, Ind.
Anchor Stove & Range Co., New Albany, Ind.
Armstrong Furnace Co., Columbus 8, Ohio
Auburn Burner Co., Auburn, Ind.
Auburn Fdry., Inc., Auburn, Ind.
Auto Heat Corp., Middletown, Conn.
Automatic Firing Corp., St. Louis, Mo.
Avery Farm Machry. Co., Peoria, Ill.
Bard Mfg. Co., Bryan, Ohio
Barton Products, Inc., Wheaton, Ill.
Bascom Co., Inc., Geo. R., Dorchester 22, Mass.
Beaver Mfg. Co., Portland 4, Ore.
Beck Eng. Combustion Ko., St. Louis 6, Mo.
Berger Furnace Co., Pittsburgh 6, Pa.
Berkley Mfg. Co., Philadelphia, Pa.
Besser Metal Products Corp., Charlotte, N. C.
Bethlehem Fdry. & Machine Co., Bethlehem, Pa.
Billow Corp., Chicago 6, Ill.
Brandenburg Industries, Inc., Baltimore 9, Md.
Brandes Co., Madison 4, Wisc.

Brown Fintube Co., Elyria, Ohio
Bryant Air Conditioning Corp., Philadelphia 23, Pa.
Bryant Corp., C. L., Cleveland 3, Ohio
Bryant Heater Div., Cleveland, Ohio
Burcar Mfg. Co., Stamford, Conn.
Burtchaell Heating Co., Portland 2, Ore.
Campbell Heating Co., Des Moines 17, Iowa
Cary Mfg. Co., Waupaca, Wisc.
Century Eng. Corp., Cedar Rapids, Iowa
Certified Furnace Co., St. Paul 4, Minn.
Chandler Co., Cedar Rapids, Iowa
Chicago Steel Furnace Co., Chicago 17, Ill.
Chimney Furnace Corp., Rockville, Md.
Coal-O-Matic Co., Trucksville, Pa.
Coleman Co., Inc., Wichita, Kan.
Combustioneer Div., Springfield, Ohio
Conco Eng. Works, Mendota, Ill.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Connelley Co., St. Louis 3, Mo.
Consolidated Industries, Inc., Lafayette, Ind.
Crane Co., Chicago 40, Ill.
Delco Appliance Div., Rochester, N. Y.
Delta Heating Corp., Trenton 8, N. J.
DeSoto Oil Burner Co., York, Pa.
Domestic Mfg. Co., Seattle, Wash.
Dornback Furnace & Fdry. Co., Cleveland 8, Ohio
Dowagiac Steel Furnace Co., Dowagiac, Mich.
Dravo Corp., Pittsburgh 22, Pa.
Eclipse Fuel Eng. Co., Rockford, Ill.
Electric Furnace-Man, Inc., Emmaus, Pa.
Electro-Watt Industries, Inc., Salem, Ore.
Electro-Watt, Inc., Seattle 1, Wash.
Electrol Burner Mfg. Co., Inc., Rutherford, N. J.
Enico Prods., Detroit 35, Mich.
Esso Standard Oil Co., New York 19, N. Y.
Ex Cel Co., Dowagiac, Mich.
Excelsior Steel Furnace Co., Chicago, Ill.
Fageol Heat Machine Co., Detroit 11, Mich.
Farquhar Furnace Co., The, Wilmington, Ohio
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Fairchester Oil Co., Inc., Port Chester, N. Y.
Federal Oil Burner Co., Inc., Philadelphia 4, Pa.
Firewel Co., Inc., The, Buffalo 25, N. Y.
Floral City Heater Co., Monroe, Mich.
Fluid Heat Div., Baltimore 24, Md.
Front Rank Mfg. Co., St. Louis 4, Mo.
General Automatic Prods. Corp., Baltimore, Md.
General Heating Prods. Co., Philadelphia, Pa.
General Machine Co., Inc., Emmaus, Pa.
General Oil Heating Corp., W. New York, N. J.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Gillen Co., J. L., Detroit 28, Mich.
Green Colonial Furnace Co., Des Moines, Iowa
Greene Mfg. Co., A., Philadelphia, Pa.
Gross Aire Mfg. Co., St. Louis 14, Mo.
Hall-Neal Furnace Co., Indianapolis, Ind.
Hart Heat Div., Peoria, Ill.
Harvey-Whipple, Inc., Springfield, Mass.
Heating Specialties, Inc., Baltimore 29, Md.
Heil Co., The, Milwaukee 1, Wisc.
Henry Furnace Co., Medina, Ohio
Herco Oil Burner Corp., Lancaster, Pa.
Hershey Machine & Fdry. Co., Manheim, Pa.
Hess Co., The, Chicago 50, Ill.
Henry Furnace Co., Medina, Ohio
Holland Furnace Co., Holland, Mich.
Home Furnace Co., Holland, Mich.
Illinois Iron & Bolt Co., Carpentersville, Ill.
International Heater Co., Utica, N. Y.
International Oil Burner Co., St. Louis 10, Mo.
International Sales Co., San Francisco, Calif.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Jettronaire, Inc., Pittsburgh, Pa.
Johnson Heater Corp., Chelsea, Mass.
Johnson Co., S. T., Oakland, Calif.
K. G. Mfg. Corp., Center Valley, Pa.
Kalamazoo Stove & Furnace Co., Kalamazoo, Mich.
Kaustine Co., Inc., Perry, N. Y.
Keith Furnace Co., Des Moines, Iowa
Kinsley Burner & Machine Co., Providence, R. I.
Kleer-Kleen Mfg. Co., Haywood, Calif.
Ko-Z-Aire Prods., Inc., Red Oak, Iowa
Kresno-Stamm Mfg. Co., Palisades Park, N. J.
Laco Oil Burner Co., Inc., Griswold, Iowa
LaSalle Oil Burner Co., Inc., Seattle 3, Wash.
Leeson Air Conditioning Corp., Detroit 27, Mich.
Lennox Furnace Co., Marshalltown, Iowa
Livingston, Inc., Marshall, Mich.
Loxaire Corp., Tacoma, Wash.
Luty Furnace Mfg. Co., Detroit 21, Mich.
Lynch Co., Inc., The, Portland 11, Ore.
McKee Air Conditioning Co., Minneapolis 12, Minn.
McPherson Furnace & Supply Co., Portland 12, Ore.
Majestic Co., Inc., The, Huntington, Ind.
Major Oil Burner Co., Philadelphia 22, Pa.
Marietta Metal Prods. Corp., Marietta, Pa.
Maxon Premix Burner Co., Muncie, Ind.
May Oil Burner Corp., Baltimore 30, Md.
Mayflower Air-Conditioners, Inc., St. Paul 6, Minn.
Mechanical Prod. Mfg. Co., Seattle 4, Wash.
Metro Oil Burner Mfg. Co., Easthampton, Mass.
Metromatic Mfg. Co., Everett 49, Mass.
Meyer Furnace Co., Peoria 2, Ill.
Montag Stove & Furnace Works, Portland 17, Ore.
Morrison Steel Prods., Inc., Buffalo 7, N. Y.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Mulkey Co., J. F., Detroit 10, Mich.
National Airoil Burner Co., Philadelphia 34, Pa.
National Heater Co., Inc., St. Paul 4, Minn.
Niagara Furnace Div., Cleveland 13, Ohio
Norge Heat, Div., Kalamazoo, Mich.
Norse Boiler Co., Inc., New Market, N. J.
Northwest Fdry. & Furnace Co., Portland 2, Ore.
Norwalk Air Conditioning Corp., The, So. Norwalk, Conn.
O'Halloran Industries, Detroit 4, Mich.
Oil-Elec-Tric Co., St. Paul 4, Minn.
Oil Eqpt. Laboratories, Inc., Elizabeth, N. J.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Pacific Oil Co., Fall River, Mass.
Paragon Oil Burner Corp., Brooklyn 22, N. Y.
Patten, Co., J. V., Sycamore, Ill.
Peabody Eng. Corp., New York 36, N. Y.
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.
Perfection Stove Co., Cleveland 4, Ohio
Petro, Cleveland 11, Ohio
Prat-Daniel Corp., So. Norwalk, Conn.
Premier Furnace Co., Dowagiac, Mich.
Quick Furnace Co., Des Moines, Iowa
Quiet Automatic Burner Corp., Newark 4, N. J.
Radiant-Aire Corp., Michigan City, Ind.
Radiation Furnace Corp., Benton Harbor, Mich.
Radiant Utilities Corp., Brooklyn 14, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Reif-Rexoil, Inc., Buffalo 3, N. Y.
Rheem Mfg. Co., Chicago 29, Ill.
Robot Auto-Heat Corp., The, Middletown, Conn.
Rossoe Mfg. Co., Inc., Seattle, Wash.
Round Oak Co., Inc., Dowagiac, Mich.
Russo, Inc., Thomas D., Boston 31, Mass.
Sandberg Mfg. Co., Portland 10, Ore.
Schurs Oil Burner Co., Los Angeles 1, Calif.
Schwab Safe Co., Lafayette, Ind.
Scott-Newcomb, Inc., St. Louis 19, Mo.
Smith Corp., A. O., Milwaukee 1, Wis.
Sinclair Refining Co., New York, N. Y.
Souther Iron Co., E. E., St. Louis 20, Mo.
Standard Arcoil Corp., Newark 8, N. J.
Standard Heating Eqpt. Co., Waterloo, Iowa
Steel City Furnace Corp., Springdale, Pa.
Steel Prods., Inc., W. Haven, Conn.
Stewart Oil Burner Co., Hanover, Pa.
Stutzman Oil Burner Co., Clifton Heights, N. J.
Surface Combustion Corp., Toledo 1, Ohio
Superior Furnace & Mfg. Co., Plymouth, Mich.
Syncromatic Corp., Watertown 9, Wisc.
Thatcher Furnace Co., Garwood, N. J.
Therm Gas Generator Co., Inc., Seattle, Wash.
Thermo-Prods., Inc., North Judson, Ind.
Tjernlund Mfg. Co., St. Paul 14, Minn.
Toridheet Div., Cleveland 2, Ohio
Tru-Heet Co., Trenton, N. J.
XXth Century Heating & Ventilating Co., Akron 1, Ohio
U. S. Machine Div., Lebanon, Ind.
U. S. Rad. Corp., Detroit 26, Mich.
Viking Oil Co., Milwaukee, Wisc.
Volcano Burner Corp., New York 61, N. Y.
Waltham Oil Burner Co., E. Boston, Mass.
Waterman-Waterbury Co., The, Minneapolis 13, Minn.
Wayne Home Eqpt. Co., Inc., Ft. Wayne 4, Ind.
Weatherall Eng. Inc., Providence, R. I.
West Coast Quiet Heet, Inc., Portland, Ore.
Williams Automatic, Inc., White Plains, N. Y.

Williams Div., Bloomington, Ill.
Williamson Heater Co., The, Cincinnati 9, Ohio
Wisconsin Oilburner Co., Madison 5, Wis.
York-Shipley, Inc., York, Pa.
Zink Co., John, Tulsa, Okla.

Forced Air, High Pressure Burner with Built-in Water Heater

Auto Heat Corp., Middletown, Conn.
Metromatic Mfg. Co., Everett 49, Mass.

Forced Air, Low Pressure Burner

Airflame, Inc., Waukegan, Ill.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
Combustioneer Div., Springfield, Ohio
Fano-Flame Oil Burner Co., Huntington Park, Calif.
General Electric Co., Bloomfield, N. J.
Scott-Newcomb, Inc., St. Louis 19, Mo.
U.S. Machine Div., Lebanon, Ind.
Weatherall Eng. Inc., Providence 4, R. I.
Williams Div., Bloomington, Ill.

Forced Air, Vaporizing

Allied Htg. & Air Conditioning Co., Lawndale, Calif.
American Boiler & Fdry. Co., Milan, Mich.
Anchor Div., New Albany, Ind.
Bauer Oil Burner, Inc., Wilmington, Del.
Beyer Oil Burner Co., Rosamond, Calif.
Brandenburg Industries, Inc., Baltimore 9, Md.
Breese Burners, Inc., Santa Fe, New Mexico
Cary Mfg. Co., Waupaca, Wisc.
Chandler Co., Cedar Rapids, Iowa
Coleman Co., Inc., The, Wichita, Kan.
Conn. State Furnace Co., Bridgeport, Conn.
Domestic Mfg. Co., Seattle, Wash.
Duo-Therm Div., Lansing 3, Mich.
Electro-Watt Industries, Inc., Salem, Ore.
Firewel Co., Inc., The, Buffalo 25, N. Y.
Hall-Neal Furnace Co., Indianapolis, Ind.
Henry Furnace Co., Medina, Ohio
Hess Co., The, Chicago 50, Ill.
Illinois Iron & Bolt Co., Carpentersville, Ill.
International Oil Burner Co., St. Louis 10, Mo.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Jettronaire, Inc., Pittsburgh 10, Pa.
Kleer-Kleen Mfg. Co., Hayward, Calif.
Kresky Mfg. Co., Petaluma, Calif.
Laco Oil Burner Co., Inc., Griswold, Iowa
Little Burner Co., Inc., San Rafael, Calif.
Meyer Furnace Co., Peoria 2, Ill.
Morrison Steel Prods. Inc., Buffalo 7, N. Y.
Northwest Metal Prods. Inc., Seattle, Wash.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Oran Co., Columbus, Ohio
Patten Co., J. V., Sycamore, Ill.
Perfection Stove Co., Cleveland 4, Ohio
Reliance Prods. Corp., Portland 4, Ore.
Richmond Rad. Co., New York 17, N. Y.
Schurs Oil Burner Co., Los Angeles 1, Calif.
Scott-Newcomb, Inc., St. Louis 19, Mo.
Silent Sioux Corp., Orange City, Iowa
Steel City Furnace Corp., Springdale, Pa.
Surface Combustion Corp., Toledo, Ohio
Thatcher Furnace Co., Garwood, N. J.
Thermo Prods., Inc., N. Judson, Ind.
U.S. Radiator Corp., Detroit 26, Mich.
Viking Oil Co., Milwaukee, Wisc.
Waterman-Waterbury Co., The, Minneapolis 13, Minn.

Forced Air, Wall Flame Vertical Rotary

American Fdry. & Furnace Co., Bloomington, Ill.
Fluid Heat Div., Baltimore 24, Md.
Marietta Metal Prods. Corp., Marietta, Pa.
O'Halloran Industries, Detroit 4, Mich.
Pacific Oil Co., Fall River, Mass.
Timken Silent Automatic Div., Jackson, Mich.
Toridheet Div., Cleveland 2, Ohio
Viking Oil Co., Milwaukee, Wisc.

Gravity, High Pressure Burner

Airflame, Inc., Waukegan, Ill.
American Ideal-Aire Corp., Westbury, N. Y.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anchor Div., New Albany, Ind.
Armstrong Furnace Co., Columbus 8, Ohio
Auburn Burner Co., Auburn, Ind.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Bethlehem Fdry. & Machine Co., Bethlehem, Pa.
Billow Corp., Chicago 6, Ill.
Bryant Air Conditioning Corp., Philadelphia 23, Pa.
Bryant Heater Div., Cleveland, Ohio
Cary Mfg. Co., Waupaca, Wisc.
Century Eng. Corp., Cedar Rapids, Ia.
Certified Furnace Co., St. Paul 4, Minn.
Chandler Co., Cedar Rapids, Iowa
Chicago Steel Furnace Co., Chicago, Ill.
Combustioneer Div., Springfield, Ohio
Conco Eng. Works, Mendota, Ill.
Delta Htg. Corp., Trenton 8, N. J.
Eclipse Fuel Eng. Co., Rockford, Ill.
Electro-Watt Industries, Inc., Salem, Ore.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Farquhar Furniture Co., The, Wilmington, Ohio
Firewel Co., Inc., The, Buffalo 25, N. Y.
Floral City Heater Co., Monroe, Mich.
Fluid Heat Div., Baltimore 24, Md.
Forest City Foundries Co., The, Cleveland 13, Ohio
Green Colonial Furnace Co., Des Moines, Ia.
Hall-Neal Furnace Co., Indianapolis, Ind.
Hart Heat Div., Peoria, Ill.
Henry Furnace Co., Medina, Ohio
Herco Oilburner Corp., Lancaster, Pa.
Hess Co., The, Chicago 50, Ill.
Home Furnace Co., Holland, Mich.
Illinois Iron & Bolt Co., Carpentersville, Ill.
International Heater Co., Utica, N. Y.
International Oil Burner Co., St. Louis 10, Mo.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Jackson & Church Co., Saginaw, Mich.
Jettronaire, Inc., Pittsburgh 10, Pa.
Kaustine Co., Inc., Perry, N. Y.
Keith Furnace Co., Des Moines, Iowa
Ko-Z-Aire Prods., Inc., Red Oak, Iowa
Kresno-Stamm Mfg. Co., Palisades Park, N. J.
Leahy Mfg. Co., Los Angeles 21, Calif.
Leeson Air Conditioning Corp., Detroit 27, Mich.
Lennox Furnace Co., Marshalltown, Iowa
Majestic Co., Inc., The, Huntington, Ind.
Major Oil Burner Co., Philadelphia 22, Pa.
Metro Oil Burner Mfg. Co., Inc., Easthampton, Mass.
Meyer Furnace Co., Peoria 2, Ill.
Montag Stove & Furnace Works, Portland 17, Ore.
Morrison Steel Prods. Inc., Buffalo 7, N. Y.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Niagara Furnace Div., Cleveland 13, Ohio
Norge Heat Div., Kalamazoo, Mich.
O'Halloran Industries, Detroit 4, Mich.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Patten Co., J. V., Sycamore, Ill.
Peerless Furnace & Fdry., Inc., Indianapolis, Ind.
Perfection Stove Co., Cleveland 4, Ohio
Premier Furnace Co., Dowagiac, Mich.
Radiant-Aire Corp., Michigan City, Ind.
Round Oak Co., Dowagiac, Mich.
Sandberg Mfg. Co., Portland 10, Ore.
Silent Automatic Prods., Jackson, Mich.
Souther Iron Co., E. E., St. Louis 20, Mo.
Steel City Furnace Corp., Springdale, Pa.
Stewart Oil Burner Co., Hanover, Pa.
Superior Furnace & Mfg. Co., Plymouth, Mich.
Synchromatic Corp., Watertown, Wisc.
Timken Silent Automatic Div., Jackson, Mich.
U.S. Machine Div., Lebanon, Ind.
U.S. Radiator Corp., Detroit 26, Mich.
Viking Oil Co., Milwaukee, Wisc.
Volcano Burner Corp., New York 61, N. Y.
Waterman-Waterbury Co., The, Minneapolis 13, Minn.
Wayne Home Eqpt. Co., Inc., Ft. Wayne, Ind.
Williams Automatic, Inc., White Plains, N. Y.
Williamson Heater Co., The, Cincinnati 9, Ohio
Wisconsin Oilburner Co., Madison 5, Wisc.

Gravity, Low Pressure Burner

Airflame, Inc., Waukegan, Ill.
Combustioneer Div., Springfield, Ohio
Fano-Flame Oil Burner Co., Huntington Park, Calif.
U.S. Machine Div., Lebanon, Mich.

Gravity, Vaporizing Burner

Allied Htg. & Air Conditioning Co., Lawndale, Calif.
American Gas Machine Co., Albert Lea, Minn.
Beyer Oil Burner Co., Rosamond, Calif.
Cary Mfg. Co., Waupaca, Wisc.
Century Eng. Corp., Cedar Rapids, Ia.

Certified Furnace Co., St. Paul 4, Minn.
Chandler Co., Cedar Rapids, Ia.
Coleman Co., Inc., The, Wichita, Kan.
Delco Appliance Div., Rochester, N. Y.
Delta Htg. Corp., Trenton, N. J.
Duo-Therm Div., Lansing 3, Mich.
Electro-Watt Industries, Inc., Salem, Ore.
Firewel Co., Inc., The, Buffalo 25, N. Y.
Gillen Co., J. L., Detroit, Mich.
Hall-Neal Furnace Co., Indianapolis, Ind.
Henry Furnace Co., Medina, Ohio
Illinois Iron & Bolt Co., Carpentersville, Ill.
International Oil Burner Co., St. Louis 10, Mo.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Kresno-Stamm Mfg. Co., Palisades Park, N. J.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Laco Oil Burner Co., Inc., Griswold, Ia.
Little Burner Co., H. C., Inc., San Rafael, Calif.
Meyer Furnace Co., Peoria 2, Ill.
Northwest Metal Prods., Inc., Seattle, Wash.
O'Halloran Industries, Detroit 4, Mich.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Oran Co., Columbus, Ohio
Patten Co., J. V., Sycamore, Ill.
Perfection Stove Co., Cleveland 4, Ohio
Prentiss Wabers Prods. Co., Wisconsin Rapids, Wisc.
Reliance Prods. Corp., Portland 14, Ore.
Sam-Bee Oil Burner Co., So. Bend 14, Ind.
Therm Gas Generator Co., Inc., Seattle, Wash.
U.S. Radiator Corp., Detroit 26, Mich.
Waterman-Waterbury Co., The, Minneapolis 13, Minn.

Gravity, Wall Flame Vertical Rotary

O'Halloran Industries, Detroit 4, Mich.

Pipeless, Oilfired

Airflame, Inc., Waukegan, Ill.
Beyer Oil Burner Co., Rosamond, Calif.
Delta Htg. Corp., Trenton 8, N. J.
DeSoto Oil Burner Co., York, Pa.
General Automatic Prod. Corp., Baltimore, Md.
Gross Aire Mfg. Co., St. Louis 14, Mo.
Harvey, C. T., Portsmouth, Va.
Montag Stove & Furnace Works, Portland, Ore.
Pacific Oil Co., Fall River, Mass.
Perfection Stove Co., Cleveland 4, Ohio
Standard Arcoil Corp., Newark 8, N. J.
Waterman-Waterbury Co., The, Minneapolis 13, Minn.

Portable

Air Conditioning Eng. Co., Cambridge 41, Mass.
American Crop Drying Eqpt. Co., Crystal Lake, Ill.
Auburn Burner Co., Auburn, Ind.
Quiet Automatic Burner Corp., Newark 4, N. J.
Norge Heat Div., Kalamazoo, Mich.
Silent Glow Oil Corp., Hartford 6, Conn.

Wall Furnaces

(See listing on page 39 under Space Heaters, Oilfired Wall Furnaces)

Furnace Accessories

Automatic Door Closer

Falz Mfg., St. Paul 4, Minn.

Bearings

Air Controls, Inc., Cleveland 4, Ohio
Lau Blower Co., The, Dayton 7, Ohio
Randall Graphite Bearings, Inc., Lima, Ohio

Belts

Gates Rubber Co., The, Denver 17, Colo.
Goodyear Tire & Rubber Co., Inc., Akron, Ohio
U.S. Rubber Co., New York 20, N. Y.

Blowers

Air Controls, Inc., Cleveland, Ohio
American Furnace Co., St. Louis 10, Mo.
American Foundry & Furnace Co., Bloomington, Ill.
American Machine Products, Marshalltown, Iowa
Auburn Fdry., Inc., Auburn, Ind.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Bishop & Babcock Mfg. Co., Cleveland 14, Ohio
Brundage Co., Kalamazoo, Mich.
Buffalo Forge Co., Inc., Buffalo, N. Y.
Campbell Htg. Co., Des Moines 17, Iowa
Cary Mfg. Co., Waupaca, Wisc.
Clarage Fan Co., Kalamazoo, Mich.
Connelley Co., St. Louis 3, Mo.
Dowagiac Steel Furnace Co., Dowagiac, Mich.
Ex Cel Co., Dowagiac, Mich.
Fasco Industries, Inc., Rochester 2, N. Y.
Firewel Co., Inc., The, Buffalo 25, N. Y.
Gross-Aire Mfg. Co., St. Louis 14, Mo.
Hall-Neal Furnace Co., Indianapolis, Ind.
Illinois Iron & Bolt Co., Carpentersville, Ill.
Lau Blower Co., The, Dayton 7, Ohio
Lennox Furnace Co., Marshalltown, Iowa
Majestic Co., Inc., The, Huntington, Ind.
Martin Fan & Blower Co., Inc., Chicago 50, Ill.
Meyer Furnace Co., The, Peoria, Ill.
Montag Stove & Furnace Works, Portland 17, Ore.
Olson Mfg. Co., The C. A., Elyria, Ohio
Peerless Electric Co., The, Warren, Ohio
Peerless Furnace & Fdry. Inc., Indianapolis, Ind.
Premier Furnace Co., Dowagiac, Mich.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Revcor, Carpentersville, Ill.
Round Oak Co., Inc. of Indiana, Dowagiac, Mich.
Silent Sioux Corp., Orange City, Iowa
U.S. Air Conditioning Corp., Minneapolis 15, Minn.
Viking Air Conditioning Corp., Cleveland 2, Ohio
Western Blower Co., Seattle 4, Wash.
Williamson Heater Co., Cincinnati 9, Ohio
Wing Mfg. Co., L. J., Linden, N. J.

Door Closers

Leisur-Maid Mfg. Corp., Grand Rapids, Mich.

Ducts

(See listings beginning on page 12)

Humidifiers, Pan Type

Auto-Flo Corp., Detroit, Mich.
Automatic Humidifier Co., Cedar Falls, Iowa
Cary Mfg. Co., Waupaca, Wisc.
Century Eng. Corp., Cedar Rapids, Iowa
Char-Gale Mfg. Co., Anoka, Minn.
Cleveland Humidifier Co., Cleveland 3, Ohio
Floral City Heater Co., Monroe, Mich.
Hall-Neal Furnace Co., Indianapolis, Ind.
Lennox Furnace Co., Marshalltown, Iowa
McDonnell & Miller, Inc., Chicago 18, Ill.
Maid-O-Mist, Inc., Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Premier Furnace Co., Dowagiac, Mich.
Round Oak Co., Inc., of Indiana, Dowagiac, Mich.
Skuttle Mfg. Co., Detroit 7, Mich.
Thermo-Prods., Inc., N. Judson, Ind.
Viking Air Conditioning Corp., Cleveland 2, Ohio

Humidifiers, Spray Type

Air Conditioning Eng. Co., Cambridge 41, Mass.
American Fdry. & Furnace Co., Bloomington, Ill.
Century Eng. Corp., Cedar Rapids, Iowa
Chandler Co., Cedar Rapids, Iowa
Handelan Washed Air Co., Minneapolis 10, Minn.
Hansen Tool & Die Co., Milwaukee 4, Wisc.
Maid-O-Mist, Inc., Chicago 41, Ill.
Rega Mfg. Co., Rochester 20, N. Y.
Walton Laboratories, Inc., Irvington, N. J. (Portable)

Jackets

Armstrong Furnace Co., Columbus 12, Ohio
Atlas Mfg. Co., St. Paul 14, Minn.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Cary Mfg. Co., Waupaca, Wisc.
Century Eng. Corp., Cedar Rapids, Iowa
Conn. State Furnace Co., Bridgeport, Conn.
Dornback Furnace & Fdry. Co., Cleveland 8, Ohio
Floral City Heater Co., Monroe, Mich.
General Machine Co., Inc., Emmaus, Pa.
Gross-Aire Mfg. Co., St. Louis, Mo.
Haydon Prod. Corp., Brooklyn 15, N. Y.
Meyer Furnace Co., The, Peoria, Ill.
Peerless Furnace & Fdry. Inc., Indianapolis, Ind.
Premier Furnace Co., Dowagiac, Mich.
Rybolt Heater Co., The, Ashland, Ohio

Thermo-Products, Inc., North Judson, Ind.
Valley Forge Metals Co., Lansdale, Pa.
Vapofier Corp., Chicago 43, Ill.
Williamson Heater Co., The, Cincinnati 9, Ohio

Pillow Blocks

Air Controls, Inc., Cleveland, Ohio
Lau Blower Co., The, Dayton 7, Ohio
Randall Graphite Bearings, Inc., Lima, Ohio

Pulleys

Cary Mfg. Co., Waupaca, Wisc.
Equi-Dyne, Chicago 44, Ill.
Gates Rubber Co., The, Denver 17, Colo.
Lau Blower Co., The, Dayton 7, Ohio

Gauges

Altitude

Degree Day Systems, Woodside 77, N. Y.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
Marsh Corp., Jas. P., Skokie, Ill.
Meriam Instrument Co., The, Cleveland 2, Ohio

Draft

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Bailey Meter Co., Cleveland 10, Ohio
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Cole Sewell Eng. Co., St. Paul 14, Minn.
Defender Instrument & Regulator Co., St. Louis, Mo.
Dwyer Mfg. Co., F. W., Chicago 12, Ill.
Ellison Draft Gage Co., Chicago 6, Ill.
Hahn Co., A., Hartford, Conn.
Hays Corp., The, Michigan City 7, Ind.
Meriam Instrument Co., The, Cleveland 2, Ohio
Perfex Corp., Milwaukee 7, Wisc.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Victory Eng. Co., Union, N. J.

Glass, Water

Diamond Power Specialty Corp., Lancaster, Ohio
Ernst Water Column & Gage Co., Livingston, N. J.
Meriam Instrument Co., The, Cleveland 2, Ohio
Wright-Austin Co., Detroit 7, Mich.

Liquid Level, Direct Reading

Applied Mechanics Co., Boston 10, Mass.
Bearlee Prods. Co., Green Bay, Wisc.
Boston Auto Gage Co., Pittsfield, Mass.
Boston Machine Works Co., Lynn, Mass.
Defender Instrument & Regulator Co., St. Louis, Mo.
Diamond Power Specialty Corp., Lancaster, Ohio
Fisher Engineering Co., Washington, D. C.
Hays Corp., The, Michigan City 7, Ind.
King Eng. Corp., Ann Arbor, Mich.
Krueger Sentry Gauge Co., Inc., Green Bay, Wisc.
Liquidepth Indicators, Inc., Long Island City 1, N. Y.
Liquidometer Corp., The, Long Island City 1, N. Y.
Mel-Gauge Co., New Haven, Conn.
Meriam Instrument Co., The, Cleveland 2, Ohio
Oil Eqpt. Mfg. Corp., New Haven, Conn.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Scully Signal Co., Cambridge 4, Mass.
Shand & Jurs Co., Berkeley 10, Calif.
Smith Corp., A. O., Los Angeles 22, Calif.
Vapor Recovery Systems Co., Compton, Calif.
Viking Pump Co., Cedar Falls, Iowa
Watchman Mfg. Co., The, Long Beach, N. Y.

Liquid Level, Distant Reading

Bailey Meter Co., Cleveland 10, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
Ernst Water Column & Gage Co., Livingston, N. J.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hays Corp., The, Michigan City 7, Ind.
King Eng. Corp., Ann Arbor, Mich.
Krueger Sentry Gauge Co., Inc., Green Bay, Wisc.
Liquidepth Indicators, Inc., Long Island City 1, N. Y.
Liquidometer Corp., The, Long Island City 1, N. Y.
Meriam Instrument Co., The, Cleveland 2, Ohio
Morse-Smith-Morse Co., Watertown 72, Mass.
Shand & Jurs Co., Berkeley 10, Calif.
Teesdale Co., The R. S., Grand Rapids 3, Mich.
Vapor Recovery Systems Co., Compton, Calif.

Pressure, Air, Steam

Bailey Meter Co., Cleveland 10, Ohio
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Delavan Mfg. Co., W. Des Moines, Iowa
Dunham Co., C. A., Chicago, Ill.
Eclipse Fuel Eng. Co., Rockford, Ill.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
Hays Corp., The, Michigan City 7, Ind.
Marsh Corp., Jas. P, Skokie, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Perfex Corp., Milwaukee, Wis.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Wright-Austin Co., Detroit 7, Mich.

Pressure, Oil

Delavan Mfg. Co., W. Des Moines, Iowa
Eclipse Fuel Eng. Co., Rockford, Ill.
Eddington Metal Specialty Co., Eddington, Pa.
Hays Corp., The, Michigan City 7, Ind.
Marsh Corp., Jas. P., Skokie, Ill.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.

Recording

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Bailey Meter Co., Cleveland 10, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
Hays Corp., The, Michigan City, Ind.
Heat-Timer Corp., New York 12, N. Y.
Master Eqpt. Corp., Dayton 1, Ohio
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

Sticks, Tank Measuring

Defender Instrument & Regulator Co., St. Louis, Mo.
Degree Day Systems, Woodside, N. Y.
Harvey, Inc., Sid, Valley Stream, N. Y.
Oregon Woodcraft Co., Beaverton, Ore.
Sharpsville Steel Fabricators, Inc., Sharpsville, Pa.

Tank, Low Level, Switch Equipped

Defender Instrument & Regulator Co., St. Louis, Mo.
Liquidepth Indicators, Inc., Long Island City 1, N. Y.
Liquidometer Corp., The, Long Island City 1, N. Y.
McDonnell & Miller, Inc., Chicago 18, Ill.
Magnetrol, Inc., Chicago 23, Ill.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Shand & Jurs Co., Berkeley 10, Calif.

Temperature

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
Degree Day Systems, Woodside 77, N. Y.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
Marsh Corp., Jas. P., Skokie, Ill.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Sarco Co., Inc., New York 1, N. Y.
Victory Eng. Corp., Union, N. J.

Vacuum

Bailey Meter Co., Cleveland 10, Ohio
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Delavan Mfg. Co., W. Des Moines, Iowa
Dunham Co., C. A., Chicago, Ill.
Hastings Inst. Co., Hampton, Va.
Marsh Corp., Jas. P., Skokie, Ill.
Meriam Instrument Co., The, Cleveland 2, Ohio
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.

Grilles, Automatic Registers

Automatic

Dole Valve Co., Chicago, Ill.

Baseboard

A&A Register Co., Cleveland 9, Ohio
A-J Mfg. Co., Kansas City, Mo.
Air Controls Prods. Inc., Coopersville, Mich.
Auer Register Co., Cleveland 5, Ohio

Barber-Colman Co., Rockford, Ill.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Bradley Mfg. Works, David, Bradley, Ill.
Char-Gale Mfg. Co., Anoka, Minn.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Dole Valve Co., Chicago 10, Ill. (Automatic type)
General Automatic Prod. Corp., Baltimore, Md.
General Electric Co., Bloomfield, N. J.
Gross-Aire Mfg. Co., St. Louis 14, Mo.
Hart & Cooley Mfg. Co., Holland, Mich.
Independent Register Co., The, Cleveland, Ohio
Jettronaire, Inc., Pittsburgh 10, Pa.
Lima Register Co., Lima, Ohio
Louvra Corp., The, Union, N. J.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Patco Mfg. Co., Philadelphia 6, Pa.
Premier Furnace Co., Dowagiac, Mich.
Radiant-Aire Corp., Michigan City, Ind.
Radiant-Ray Radiation, Inc., New Britain, Conn.
Radiation Furnace Corp., Benton Harbor, Mich.
Roberts Co., S. R., Marshall, Mich.
Rossoe Mfg. Co., Seattle 9, Wash.
Round Oak Co., Inc. of Indiana, Dowagiac, Mich.
Thermo Base Div., Michigan City, Ind.
Titus, Inc., Waterloo, Iowa
U.S. Register Co., Battle Creek, Mich.
Valley Forge Metals Co., Lansdale, Pa.
Vectaire Mfg. Co., Melrose, Mass.
Viking Mfg. Corp., Cleveland, Ohio
York-Shipley Mfg. Co., York, Pa.

Dampers

Air Controls Prods. Inc., Coopersville, Mich.
American Fdry. & Furnace Co., Bloomington, Ill.
Barber-Colman Co., Rockford, Ill.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Char-Gale Mfg. Co., Anoka, Minn.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Hart & Cooley Mfg. Co., Holland, Mich.
Independent Register Co., The, Cleveland, Ohio
Louvra Corp., The, Union, N. J.
Majestic Co., Inc., The, Huntington, Ind.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
U.S. Register Co., Battle Creek, Mich.

Diffusers, Ceiling Type

A&A Register Co., Cleveland 9, Ohio
Air Controls Prods. Inc., Coopersville, Mich.
Auer Register Co., Cleveland 5, Ohio
Barber-Colman Co., Rockford, Ill.
Char-Gale Mfg. Co., Anoka, Minn.
Conner Eng. Corp., Danbury, Conn.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Hart & Cooley Mfg. Co., Holland, Mich.
Independent Register Co., The, Cleveland, Ohio
Lima Register Co., Lima, Ohio
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Round Oak Co., Inc., Dowagiac, Mich.
Tuttle & Bailey, Inc., New Britain, Conn.
U.S. Register Co., Battle Creek, Mich.

Diffusers, Floor Type

Hart & Cooley Mfg. Co., Holland, Mich.

Diffusers, Wall Type

A&A Register Co., Cleveland 9, Ohio
A-J Mfg. Co., Kansas City, Mo.
Air Controls Prods. Inc., Coopersville, Mich.
Auer Register Co., Cleveland 5, Ohio
Barber-Colman Co., Rockford, Ill.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Char-Gale Mfg. Co., Anoka, Minn.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
General Electric Co., Bloomfield, N. J.
Grand Island Furnace & Supply Co., Grand Island, Nebr.
Hart & Cooley Mfg. Co., Holland, Mich.
Independent Register Co., The, Cleveland, Ohio
Lima Register Co., Lima, Ohio
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
Premier Furnace Co., Dowagiac, Mich.
Round Oak Co., Inc., Dowagiac, Mich.
Thermo-Base Div., Michigan City, Ind. (Baseboard)
U.S. Register Co., Battle Creek, Mich.
Vectaire Mfg. Co., Melrose, Mass.

Floor

A&A Register Co., Cleveland 9, Ohio
A-J Mfg. Co., Kansas City, Mo.
Air Controls Prods. Inc., Coopersville, Mich.
Alton Mfg. Co., Dallas 2, Texas
Auer Register Co., Cleveland 5, Ohio
Barber-Colman Co., Rockford, Ill.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Chandler Co., Cedar Rapids, Iowa
Char-Gale Mfg. Co., Anoka, Minn.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Hart & Cooley Mfg. Co., Holland, Mich.
Independent Register Co., The, Cleveland, Ohio
Lima Register Co., Lima, Ohio
Louvra Corp., The, Union, N. J.
Midco Register Corp., St. Paul 5, Minn.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Grille & Register Co., Cleveland 4, Ohio
Rock Island Register Co., Rock Island, Ill.
Round Oak Co., Inc., Dowagiac, Mich.
U.S. Register Co., Battle Creek, Mich.
Viking Mfg. Corp., Cleveland, Ohio

Perimeter

Char-Gale Mfg. Co., Anoka, Minn.
International Oil Burner Co., St. Louis 10, Mo.
Lima Register Co., Lima, Ohio
Linden Metal Specialty Co., Anoka, Minn.
Titus, Inc., Waterloo, Iowa

Splitters

Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Majestic Co., Inc., The, Huntington, Ind.
U.S. Register Co., Battle Creek, Mich.

Wall

A&A Register Co., Cleveland 9, Ohio
A-J Mfg. Co., Kansas City, Mo.
Air Controls Prods., Inc., Coopersville, Mich.
Alton Mfg. Co., Dallas 2, Texas
Auer Register Co., Cleveland 5, Ohio
Barber-Colman Co., Rockford, Ill.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Bradley Mfg. Works, David, Bradley, Ill.
Chandler Co., Cedar Rapids, Iowa
Char-Gale Mfg. Co., Anoka, Minn.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Dole Valve Co., Chicago 10, Ill. (Automatic type)
General Electric Co., Bloomfield, N. J.
Hart & Cooley Mfg. Co., Holland, Mich.
Hastings Air Conditioning Co., Inc., Hastings, Neb.
Independent Register Co., The, Cleveland, Ohio
Jettronaire, Inc., Pittsburgh 10, Pa.
Lima Register Co., Lima, Ohio
Louvra Corp., The, Union, N. J.
Midco Register Corp., St. Paul 5, Minn.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Grille & Register Co., Cleveland 4, Ohio
Radiant-Ray Radiation, Inc., New Britain, Conn.
Rock Island Register Co., Rock Island, Ill.
Round Oak Co., Inc. of Indiana, Dowagiac, Mich.
Titus, Inc., Waterloo, Iowa
Tuttle & Bailey, Inc., New Britain, Conn.
U.S. Rad. Corp., Detroit 26, Mich.
U.S. Register Co., Battle Creek, Mich.
Viking Mfg. Corp., Cleveland, Ohio

Instruments

Advertising Thermometers

Automatic Devices Co., Inc., Western Springs, Ill.

Air Velocity

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Defender Instrument & Regulator Co., St. Louis, Mo.
Dwyer Mfg. Co., F. W., Chicago 12, Ill.
Ellison Draft Gage Co., Chicago 6, Ill.
Hastings Instr. Co., Hampton, Va.
Illinois Testing Laboratories, Inc., Chicago 10, Ill.
Meriam Instrument Co., The, Cleveland 2, Ohio

Air Volume

Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Defender Instrument & Regulator Co., St. Louis, Mo.
Dwyer Mfg. Co., F. W., Chicago 12, Ill.

CO_2 *Indicating Portable*

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Cole-Sewell Eng. Co., St. Paul 14, Minn.
Defender Instrument & Regulator Co., St. Louis, Mo.
Dwyer Mfg. Co., F. W., Chicago 12, Ill.
Ellison Draft Gage Co., Chicago 6, Ill.
General Power Plant Corp., Ossining, N. Y.
Hays Corp., The, Michigan City, Ind.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Thermco Laboratories, Michigan City, Ind.
Victory Eng. Corp., Union, N. J.

CO_2 *Indicating, Stationary*

Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
Dwyer Mfg. Co., F. W., Chicago 12, Ill.
Hays Corp., The, Michigan City, Ind.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Thermco Laboratories, Michigan City, Ind.
Victory Eng. Corp., Union, N. J.

CO_2 *Recording*

Defender Instrument & Regulator Co., St. Louis, Mo.
Hays Corp., The, Michigan City, Ind.
Victory Eng. Corp., Union, N. J.

Combustion Test Sets, Portable

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Defender Instrument & Regulator Co., St. Louis, Mo.
Dwyer Mfg. Co., F. W., Chicago 12, Ill.
Ellison Draft Gage Co., Chicago 6, Ill.
General Power Plant Corp., Ossining, N. Y.
Hays Corp., The, Michigan City, Ind.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Victory Eng. Corp., Union, N. J.

Degree-Day Recorder

Hidy & Co., Elmo D., Cincinnati 36, Ohio

Dial Thermometers

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa
Cole Sewell Eng. Co., St. Paul 14, Minn.
Defender Instrument & Regulator Co., St. Louis, Mo.
Degree Day Systems, Woodside, N. Y.
Marsh Corp., Jas. P., Skokie, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
New York Air Valve Corp., Brooklyn, N. Y.
Pacific Transducer Corp., Los Angeles 64, Calif.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Sarco Co., Inc., New York 1, N. Y.
Taylor Instrument Co., Rochester 1, N. Y.
Weston Electrical Instrument Corp., Newark 5, N. J.

Draft Indicating

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Bailey Meter Co., Cleveland 10, Ohio
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
Dwyer Mfg. Co., F. W., Chicago 12, Ill.
Ellison Draft Gage Co., Chicago 6, Ill.
General Power Plant Corp., Ossining, N. Y.
Hastings Instr. Co., Inc., Hampton, Va.
Hays Corp., The, Michigan City 7, Ind.
Meriam Instrument Co., The, Cleveland 2, Ohio
Perfex Corp., Milwaukee 7, Wisc.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Victory Eng. Corp., Union, N J.

Draft Recording

Bailey Meter Co., Cleveland 10, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
Hastings Instr. Co., Inc., Hampton, Va.
Hays Corp., The, Michigan City 7, Ind.
Victory Eng. Corp., Union, N J.

Flow Indicating

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Bailey Meter Co., Cleveland 10, Ohio
Bowser, Inc., Ft. Wayne, Ind.
Defender Instrument & Regulator Co., St. Louis, Mo.
Dwyer Mfg. Co., F. W., Chicago 12, Ill.
Hastings Instr. Co., Inc., Hampton, Va.
Hays Corp., The, Michigan City 7, Ind.
Henzey Co., Watertown, Wisc.
McDonnell & Miller, Inc., Chicago 18, Ill.
Magnetrol, Inc., Chicago 23, Ill.
Meriam Instrument Co., The, Cleveland 2, Ohio
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Republic Flow Meters Co., Chicago 47, Ill.
Smith Corp., A. O., Los Angeles 22, Calif.
Victory Eng. Corp., Union, N J.

Flow Recording

Bailey Meter Co., Cleveland 10, Ohio
Bowser, Inc., Ft. Wayne, Ind.
Defender Instrument & Regulator Co., St. Louis, Mo.
Hastings Instr. Co., Inc., Hampton, Va.
Hays Corp., The, Michigan City 7, Ind.
King Eng. Corp., Ann Arbor, Mich.
Master Eqpt. Corp., Dayton 1, Ohio
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Smith Corp., A. O., Los Angeles 22, Calif.

High-Low Thermometers

Barber-Colman Co., Rockford, Ill.
Degree Day Systems, Woodside 77, N. Y.
Taylor Instrument Co., Rochester 1, N. Y.
Weston Electrical Instrument Corp., Newark 5, N. J.

Humidity Indicating

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Barber-Colman Co., Rockford, Ill.
Degree Day Systems, Woodside 77, N. Y.
Friez Instrument Div., Baltimore 4, Md.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Walton Laboratories, Inc., Irvington, N. J.
Weston Electrical Instrument Corp., Newark 5, N. J.

Humidity Recording

Barber-Colman Co., Rockford, Ill.
Friez Instrument Div., Baltimore 4, Md.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Walton Laboratories, Inc., Irvington, N. J.
Weston Electrical Instrument Corp., Newark 5, N. J.

Manometers

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Defender Instrument & Regulator Co., St. Louis, Mo.
Dwyer Mfg. Co., F. W., Chicago 12, Ill.
Ellison Draft Gage Co., Chicago 6, Ill.
Hastings Instr. Co., Inc., Hampton, Va.
King Eng. Corp., Ann Arbor, Mich.
Meriam Instrument Co., The, Cleveland 2, Ohio
Vapor Recovery Systems Co., Compton, Calif.

Pocket Thermometers

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Cole Sewell Eng. Co., St. Paul 14, Minn.
Marsh Corp., Jas. P., Skokie, Ill.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Weston Electrical Instrument Corp., Newark 5, N. J.

Pressure Indicating

Bailey Meter Co., Cleveland 10, Ohio
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Cooper Co., Clark, Palmyra, N. J.
Dwyer Mfg. Co., F. W., Chicago 12, Ill.
Ellison Draft Gage Co., Chicago 6, Ill.
Hastings Instr. Co., Inc., Hampton, Va.
Hays Corp., The, Michigan City 7, Ind.
King Eng. Corp., Ann Arbor, Mich.
Marsh Corp., Jas. P., Skokie, Ill.
Meriam Instrument Co., The, Cleveland 2, Ohio
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
New York Air Valve Corp., Brooklyn, N. Y.
Perfex Corp., Milwaukee 7, Wisc.
Rochester Mfg. Co., Inc., Rochester 10, N. Y.
Weston Electrical Instrument Corp., Newark 5, N. J.

Pressure Recording

Bailey Meter Co., Cleveland 10, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
Hastings Instr. Co., Inc., Hampton, Va.
Hays Corp., The, Michigan City 7, Ind.
Heat-Timer Corp., New York 12, N. Y.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Weston Electrical Instrument Corp., Newark 5, N. J.

Pyrometers

Bailey Meter Co., Cleveland 10, Ohio
Barber-Colman Co., Rockford, Ill.
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Illinois Testing Laboratories, Inc., Chicago 10, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Weston Electrical Instrument Corp., Newark 5, N. J.

Room Thermometers

Automatic Devices Co., Inc., Western Springs, Ill.
Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Barber-Colman Co., Rockford, Ill.
Degree Day Systems, Woodside, N. Y.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

Temperature Indicating

Automatic Devices Co., Inc., Western Springs, Ill.
Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Bailey Meter Co., Cleveland 10, Ohio
Barber-Colman Co., Rockford, Ill.
Clarkstan Corp., Los Angeles 64, Calif.
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Cooper Co., Clark, Palmyra, N. J.
Defender Instrument & Regulator Co., St. Louis, Mo.
Degree Day Systems, Woodside, N. Y.
Hastings Instr. Co., Inc., Hampton, Va.
Heat-Timer Corp., New York 12, N. Y.
Illinois Testing Laboratories, Inc., Chicago 10, Ill.
Marsh Corp., Jas. P., Skokie, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Sarco Co., Inc., New York 1, N. Y.
Victory Eng. Corp., Union, N. J.
Weston Electrical Instrument Corp., Newark 5, N. J.

Temperature Recording

Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.
Bailey Meter Co., Cleveland 10, Ohio
Barber-Colman Co., Rockford, Ill.
Cole Sewell Eng. Co., St. Paul 14, Minn.
Defender Instrument & Regulator Co., St. Louis, Mo.
Hastings Instr. Co., Inc., Hampton, Va.
Hays Corp., Michigan City, Ind.
Heat-Timer Corp., New York 12, N. Y.
Friez Instrument Div., Baltimore 4, Md.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Victory Eng. Corp., Union, N. J.
Weston Electrical Instrument Corp., Newark 5, N. J.

Vacuum Indicating

Bailey Meter Co., Cleveland 10, Ohio
Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
Ellison Draft Gage Co., Chicago 6, Ill.
General Electric Co., Schenectady 5, N. Y.
Hastings Instr. Co., Inc., Hampton, Va.
King Eng. Corp., Ann Arbor, Mich.
Marsh Corp., Jas. P., Skokie, Ill.
Meriam Instrument Co., The, Cleveland 2, Ohio
New York Air Valve Corp., Brooklyn, N. Y.

Vacuum Recording

Bailey Meter Co., Cleveland 10, Ohio
Defender Instrument & Regulator Co., St. Louis, Mo.
Hastings Instr. Co., Inc., Hampton, Va.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

Insulation

Boiler

Armstrong Cork Co., Lancaster, Pa.
Babcock & Wilcox Co, New York 17, N. Y.
Carey Mfg. Co., Philip, Cincinnati, Ohio
Denver Fire Clay Co., The, Denver 17, Colo.
Eagle-Picher Co., The, Cincinnati 1, Ohio
General Refractories Co., Philadelphia, Pa.
Grant Wilson, Inc., Chicago 4, Ill.
Insulating Refractories Co., San Rafael, Calif.
Johns-Manville Corp., New York 16, N. Y.
Mexico Refractories Co., Mexico, Mo.
Nock Fire Brick Co., The, Cincinnati 3, Ohio
Reflectal Corp., New York City, N. Y.
Refractory & Insulation Corp., Port Kennedy, Pa.
Sall Mountain Co., Hamilton, Ohio
Zonolite Co., Chicago 3, Ill.

Duct

Armstrong Cork Co., Lancaster, Pa.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Eagle-Picher Co., The, Cincinnati 1, Ohio
General Refractories Co., Philadelphia, Pa.
Grant Wilson, Inc., Chicago 4, Ill.
Insulation Materials Corp., New York, N. Y.
Johns-Manville Corp., New York 16, N. Y.
Mexico Refractories Co., Mexico, Mo.
Reflectal Corp., New York City, N. Y.
Refractory & Insulation Corp., Port Kennedy, Pa.
Sall Mountain Co., Chicago 3, Ill.
Sall Mountain Co., Hamilton, Ohio
Zonolite Co., Chicago 3, Ill.

Firebox, High Temperature

Armstrong Cork Co., Lancaster, Pa.
Babcock & Wilcox Co., New York 17, N. Y.
Carolina Rafractories Co., Hartsville, S. C.
Denver Fire Clay Co., The, Denver 17, Colo.
Gem Clay Forming Co., The, Sebring, Ohio
Green Fire Brick Co., A. P., Mexico, Mo.
Mexico Refractories Co., Mexico, Mo.
National Fuel Conservation Co., Inc., White Plains, N. Y.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Peterson Co., B. A., Dowagiac, Mich.
Refractory & Insulation Corp., Port Kennedy, Pa.
S.O.S. Prods. Co., Inc., Brooklyn 22, N. Y.
Sall Mountain Co., Hamilton, Ohio
Schlitt & Son, Inc., Joseph A., Jersey City 4, N. J.
Walsh Refractories Corp., St. Louis 7, Mo.
Zonolite Co., Chicago 3, Ill.

House, Bats

Armstrong Cork Co., Lancaster, Pa.
Carey Mfg. Co., Philip, Cincinnati, Ohio
Eagle-Picher Co., The, Cincinnati 1, Ohio
Johns-Manville Corp., New York 16, N. Y.

House, Blanket

Armstrong Cork Co., Lancaster, Pa.
Carey Mfg. Co., Philip, Cincinnati, Ohio
Eagle-Picher Co., The, Cincinnati 1, Ohio
Johns-Manville Corp., New York 16, N. Y.
Reflectal Corp., New York City, N. Y.

House, Blown

Armstrong Cork Co., Lancaster, Pa.
Carey Mfg. Co., Philip, Cincinnati, Ohio
Eagle-Picher Co., The, Cincinnati 1, Ohio
Johns-Manville Corp., New York 16, N. Y.
Zonolite Co., Chicago 3, Ill.

House, Reflective

Grant Wilson, Inc., Chicago 4, Ill.
Reflectal Corp., New York City, N. Y.

Pipe

Armstrong Cork Co., Lancaster, Pa.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Eagle-Picher Co., The, Cincinnati 1, Ohio
Gem Clay Forming Co., The, Sebring, Ohio
Grant Wilson, Inc., Chicago 4, Ill.
Insulation Materials Corp., New York, N. Y.
Johns-Manville Corp., New York 16, N. Y.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.
Reflectal Corp., New York City, N. Y.
Refractory & Insulation Corp., Port Kennedy, Pa.
Sall Mountain Co., Chicago 3, Ill.
Sall Mountain Co., Hamilton, Ohio
Zonolite Co., Chicago 3, Ill.

Sound

Eagle-Picher Co., The, Cincinnati 1, Ohio
Grant Wilson, Inc., Chicago 4, Ill.
Johns-Manville Corp., New York 16, N. Y.
Refractory & Insulation Corp., Port Kennedy, Pa.
Sall Mountain Co., Hamilton, Ohio
Zonolite Co., Chicago 3, Ill.

Tank

Armstrong Cork Co., Lancaster, Pa.
D. & C. Equipment Co., Hartford, Conn.
Eagle-Picher Co., The, Cincinnati 1, Ohio

General Refractories Co., Philadelphia, Pa.
Grant Wilson, Inc., Chicago 4, Ill.
Insulating Refractories Co., San Rafael, Calif.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Reflectal Corp., New York City, N. Y.
Refractory & Insulation Corp., Port Kennedy, Pa.
Sall Mountain Co., Hamilton, Ohio
Zonolite Co., Chicago 3, Ill.

Wall-Board, Rigid

Armstrong Cork Co., Lancaster, Pa.
Carey Mfg. Co., Philip, Cincinnati, Ohio
Refractory & Insulation Corp., Port Kennedy, Pa.

Wall-Board, Semi-Rigid

Carey Mfg. Co., Philip, Cincinnati, Ohio
Nock Fire Brick Co., The, Cleveland 3, Ohio
Refractory & Insulation Corp., Port Kennedy, Pa.
Sall Mountain Co., Hamilton, Ohio

Mirrors

Flame Inspection

Delavan Mfg. Co., W. Des Moines, Iowa

Motors, Electric

Damper

Barber-Colman Co., Rockford, Ill.
Fasco Industries, Inc., Rochester 2, N. Y.
General Electric Co., Schenectady 5, N. Y.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Radex Corp., Chicago 14, Ill.

Hot Water Circulator

Century Electric Co., St. Louis 3, Mo.
Delco Prods. Div., Dayton 1, Ohio
Emerson Electric Mfg. Co., The, St. Louis 21, Mo.
Fasco Industries, Inc., Rochester 2, N. Y.
General Electric Co., Ft. Wayne 2, Ind.
General Electric Co., Schenectady 5, N. Y.
Grainger, Inc., W. W., Chicago 12, Ill.
Marathon Electric Mfg. Corp., Wausau, Wisc.
Piqua Machine & Mfg. Co., The, Piqua, Ohio
Radex Corp., Chicago 14, Ill.
Silent Flame Mfg. Co., Inc., New York 72, N. Y.
Small Motors, Inc., Chicago 14, Ill.
Westinghouse Electric Corp., Lima, Ohio

Oilburner

Century Electric Co., St. Louis 3, Mo.
Delco Appliance Div., Rochester, N. Y.
Delco Prods. Div., Dayton 1, Ohio
Doerr Electric Corp., Cedarburg, Wisc.
Electric Motor Development Co., Wickliffe, Ohio
Electro Machines, Inc., Cedarburg, Wisc.
Emerson Electric Mfg. Co., The, St. Louis 21, Mo.
Fasco Industries, Inc., Rochester 2, N. Y.
General Electric Co., Ft. Wayne, Ind.
General Electric Co., Schenectady 5, N. Y.
Grainger, Inc., W. W., Chicago 12, Ill.
HomEase Prods. Div., Inc., Paterson, N. J.
Hoover Co., Kingston-Colney Div., No. Plainfield, N. J
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Marathon Electric Mfg. Corp., Wausau, Wisc.
Marco Industries, Inc., Depew, N. Y.
Ohio Electric Mfg. Co., Cleveland 4, Ohio
Packard Electric Div., Warren, Ohio
Radex Corp., Chicago 14, Ill.
Ray Oil Burner Co., San Francisco 12, Calif.
Redmond Co., Inc., Owosso, Mich.
Small Motors, Inc., Chicago 14, Ill.
Westinghouse Electric Corp., Lima, Ohio
Westinghouse Electric Corp., Pittsburgh 30, Pa.

Warm Air Blower

Century Electric Co., St. Louis 3, Mo.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Delco Appliance Div., Rochester, N. Y.
Delco Prods. Div., Dayton 1, Ohio
Doerr Electric Corp., Cedarburg, Wisc.
Emerson Electric Mfg. Co., The, St. Louis 21, Mo.
Fasco Industries, Inc., Rochester 2, N. Y.
General Electric Co., Schenectady 5, N. Y.
Grainger, Inc., W. W., Chicago 12, Ill.
Hoover Co., No. Plainfield, N. J.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Marathon Electric Mfg. Corp., Wausau, Wisc.
Marco Industries, Inc., Depew, N. Y.
Packard Electric Div., Warren, Ohio
Peerless Electric Co., The, Warren, Ohio
Radex Corp., Chicago 14, Ill.
Ray Oil Burner Co., San Francisco 12, Calif.
Redmond Co., Inc., Owosso, Mich.
Small Motors, Inc., Chicago 14, Ill.
Smith Corp., A. O., Los Angeles 22, Calif.
Universal Electric Co., Owosso, Mich.
Westinghouse Electric Corp., Lima, Ohio

Nozzles

Atomizing Heavy Oil

Delavan Mfg. Co., W. Des Moines, Iowa
Eclipse Fuel Eng. Co., Rockford, Ill.
Eddington Metal Specialty Co., Eddington, Pa.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Harsch & Co., H., Maplewood, N. J.
Lammert & Mann Co., Chicago 12, Ill.
Leahy Mfg. Co., Los Angeles 21, Calif.
Monarch Mfg. Works, Inc., Philadelphia 34, Pa.
Ray Oil Burner Co., San Francisco 12, Calif.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Steinen Mfg. Co., Wm., Newark 5, N. J.

Atomizing Light Oil

Boston Machine Works Co., Lynn, Mass.
Century Eng. Corp., Cedar Rapids, Iowa
Delavan Mfg. Co., W. Des Moines, Iowa
Eclipse Fuel Eng. Co., Rockford, Ill.
Eddington Metal Specialty Co., Eddington, Pa.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Hago Prods., Irvington, N. J.
Harsch & Co., H., Maplewood, N. J.
Harvey, Inc., Sid., Valley Stream, N. Y.
Huss Oil Burner Accessories Corp., The, E. Port Chester, Conn.
Kopp Nozzle, Maplewood, N. J.
Monarch Mfg. Works, Inc., Philadelphia 34, Pa.
Oil Eqpt. Laboratories, Inc., Elizabeth 4, N. J.
Petro, Cleveland 11, Ohio
Ray Oil Burner Co., San Francisco 12, Calif.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Steinen Mfg. Co., Wm., Newark 5, N. J.
Sussex Nozzle Co., Morristown, N. J.
Ultra Metal Utilities Corp., Long Island City 2, N. Y.
Weatherhead Co., The, Cleveland 8, Ohio

Atomizing Water

Century Engineering Corp., Cedar Rapids, Iowa
Delavan Mfg. Co., W. Des Moines, Iowa
Eddington Metal Specialty Co., Eddington, Pa.
Harsch & Co., H., Maplewood, N. J.
Maid-O-Mist, Inc., Chicago 41, Ill.
Monarch Mfg. Works, Inc., Philadelphia 34, Pa.
Rega Mfg. Co., Rochester 20, N. Y.
Steinen Mfg. Co., Wm., Newark 5, N. J.
Weatherhead Co., The, Cleveland 8, Ohio

Extractors

Boston Machine Works Co., Lynn, Mass.

Oil Delivery

Allied Tank Truck Equipment Co., Philadelphia 3, Pa.
Bowser, Inc., Ft. Wayne, Ind.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Gasoline & Oil Eqpt. Co., New Haven, Conn.
Goodall Rubber Co., Trenton 4, N. J.
Mechanical Prods. Co., Seattle 4, Wash.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Philadelphia Valve Co., Philadelphia 34, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Sharpsville Steel Fabricators, Sharpsville, Pa.
Steinen Mfg. Co., Wm., Newark 5, N. J.
Wheaton Brass Works, Union, N. J.

Service Kits

Boston Machine Works Co., Lynn, Mass.
Delavan Mfg. Co., W. Des Moines, Iowa
Eddington Metal Specialty Co., Eddington, Pa.
Steinen Mfg. Co., Wm., Newark 5, N. J.

Oilburners, Domestic

Atomizing Vertical Rotary

Hardinge Oil Burner & Mfg. Co., Chicago 13, Ill.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Hayward Oil Burner Corp., Cambridge, Mass.
Iron Fireman Mfg. Co., Cleveland, Ohio
MacLeod Co., Cincinnati 22, Ohio

High Pressure, Gun

Acme Heat & Power, Inc., Brooklyn 6, N. Y.
Acme Oil Burner Co., Cedar Rapids, Iowa
Acme Tool & Gauge Co., Providence 4, R. I.
Alan Distributors, Inc., Worcester, Mass.
American Lava Corp., Chattanooga 5, Tenn.
Aire Director Mfg. Co., Seattle 9, Wash.
Airflame, Inc., Waukegan, Ill.
Airtemp Div., Dayton 1, Ohio
Aldrich Co., Wyoming, Ill.
Allied Eng. Co., Allston, Mass.
American Crop Drying Eqpt. Co., Crystal Lake, Ill.
American Furnace Co., St. Louis 10, Mo.
American Mohawk Co., Inc., New York 14, N. Y.
American Oil Burners & Htg. Utilities, Brooklyn 20, N. Y.
American Oil Co., Baltimore, Md.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anchor Div., New Albany, Ind.
Anchor Stove & Range Co., New Albany, Ind.
Armstrong Furnace Co., Columbus 8, Ohio
Arrow Petroleum Co., Chicago, Ill.
Aston Products, Inc., Hazel Park, Mich.
Atlas Mfg. Corp., Brooklyn, N. Y.
Auburn Burner Co., Auburn, Ind.
Auto-Heat Corp., Middletown, Conn.
Automatic Burner Corp., Chicago 12, Ill.
Automatic Firing Corp., St. Louis, Mo.
Avery Farm Mach'ny Co., Peoria, Ill.
Bard Mfg. Co., Bryan, Ohio
Barclay, Inc., Robert, Chicago 7, Ill.
Bascom Co., Inc., Geo. R., Dorchester 22, Mass.
Beck Eng. Combustibles Ko., St. Louis 6, Mo.
Beckett Corp., R. W., Elyria, Ohio
Berkley Mfg. Co., Philadelphia, Pa.
Bethlehem Fdry. & Machine Co., Bethlehem, Pa.
Bettendorf Oil Burner Co., Marshalltown, Iowa
Braun Bros. Oil Co., Winnetka, Ill.
Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Bryan Steam Corp., Peru, Ind.
Bryant Air Conditioning Corp., Peru, Ind.
Bryant Heater Div., Cleveland 10, Ohio
Burcar Mfg. Co., Stamford, Conn.
Burn-Rite Products Co., Yonkers 2, N. Y.
Caloroil Burner Corp., Hartford, Conn.
Campbell Machine Co., Minneapolis, Minn.
Capson Co., Brooklyn, N. Y.
Carlin Co., Wethersfield, Conn.
Carlton Oil Burner Co., Hartford 3, Conn.
Cary Mfg. Co., Waupaca, Wisc.
Century Eng. Corp., Cedar Rapids, Iowa
Certified Furnace Co., St. Paul 4, Minn.
Chalmers Oil Burner Co., Minneapolis, Minn.
Chandler Co., Cedar Rapids, Iowa
Cities Service Oil Co. (Pa.), New York, N. Y.
Citro Oil Burners Corp., Pompton Lakes, N. J.
Coleman Co., Inc., Wichita, Kan.
Columbia Boiler Co., Pottstown, Pa.
Combustioneer Div., Springfield, Ohio
Conco Eng. Works, Mendota, Ill.
Concord Oil Corp., Lawrence, N. Y.
Conecticut Refining Co., W. Haven, Conn.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Connelley Co., St. Louis 3, Mo.
Consolidated Industries, Inc., Lafayette, Ind.
Crane Co., Chicago 40, Ill.
Crown Petroleum Corp., Hartford, Conn.
Cuthrell Machine Works, Norfolk 6, Va.
"David" Automatic Oil Burners, Camden, N. J.
Davis Eng. Co., Yonkers, N. Y.
Delco Appliance Div., Rochester, N. Y.
D'Elia Oil Burner Co., Bridgeport 8, Conn.
Delta Heating Corp., Trenton 8, N. J.
Des Moines Furnace & Stove Repair Co., Des Moines 5, Iowa
De Soto Oil Burner Corp., York, Pa.
Dewey-Shepard Boiler Co., Indianapolis, Ind.
Diamond Instrument Co., Wakefield, Mass.
Diamond Iron Works, Inc., Minneapolis 11, Minn.
Diesel Burners Mfg. Co., Moosup, Conn.
Diesel Oil Burner Corp. of N. Y., Jamaica 5, N. Y.
Domestic Mfg. Co., Seattle, Wash.
Dornback Furnace & Fdry. Co., Cleveland 8, Ohio
Dowagiac Steel Furnace Co., Dowagiac, Mich.
Drexel Mfg. Co., Philadelphia, Pa.
Duff, David & Son, New Bedford, Mass.
East Coast Co., Boston 9, Mass.
Eastern Tool Co. of Springfield, Mass.
Eckhart Mfg. Co., Inc., Union, N. J.
Eddy Stoker Corp., Chicago, Ill.
Eds-Wil Burner Corp., Chicago, Ill.
Electric Furnace-Man, Inc., Emmaus, Pa.
Electro-Watt, Inc., Seattle 1, Wash.
Electro-Watt Industries, Inc., Salem, Ore.
Electrol Burner Mfg. Co., Inc., Rutherford, N. J.
Engineer Co., The, New York 6, N. Y.
Enterprise Engine & Machinery Co., San Francisco 10, Calif.
Esso Standard Oil Co., New York 19, N. Y.
Ewbank Co., Natamoras, Pa.
Ex Cel Co., Dowagiac, Mich.
Excelsior Steel Furnace Co., Chicago, Ill.
Fairchester Oil Co., Inc., Port Chester, N. Y.
Fairfield Oil Heating Co., Inc., Greenwich, Conn.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Fargo Fdry. Co., Inc., Fargo, N. D.
Farquhar Furnace Co., Wilmington, Ohio
Faultless Oil Burner Co., St. Albans, L. I., N. Y.
Federal Boiler Co., Inc., Midland Park, N. J.
Federal Oil Burner Co., Inc., Philadelphia 4, Pa.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
Flame-Master Co., Chicago, Ill.
Floral City Heater Co., Monroe, Mich.
Fluid Heat Div., Baltimore 24, Md.
Front Rank Mfg. Co., St. Louis 4, Mo.
General Automatic Prods. Corp., Baltimore 13, Md.
General Machine Co., Inc., Emmaus, Pa.
General Oil Heating Corp., W. New York, N. J.
General Utilities Corp., Philadelphia 21, Pa.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Glo-Heat Co., Philadelphia 40, Pa.
Gold Star Oil Burner Mfg. Co., Inc., Yonkers 2, N. Y.
Golden Flame Mfg. Co., Camden 3, N. J.
Goodrich Oil Burner Mfg. Co., Camden 3, N. J.
Gould Oil Burner Co., Boston 20, Mass.
Green Colonial Furnace Co., Des Moines, Iowa
Greene Mfg. Co., A., Philadelphia, Pa.
Greene & Hodgson, Inc., Providence 5, R. I.
Greenwood Eng. Co., Baltimore 30, Md.
Hall-Neal Furnace Co., Indianapolis, Ind.
Hart Heat Div., Peoria, Ill.
Harvey, Inc., Sid, Valley Stream, N. Y.
Harvey-Whipple, Inc., Springfield, Mass.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Hayward Oilburner Corp., Cambridge, Mass.
Heatcraft Co., Louisville 2, Ky.
Heet-Master Prod. Co., Baltimore 18, Md.
Heil Co., The, Milwaukee 1, Wisc.
Henry Furnace Co., Medina, Ohio
Herco Oil Burner Corp., Lancaster, Pa.
Hershey Machine & Fdry. Co., Manheim, Pa.
Hershner Mfg. Co., York, Pa.
Holland Furnace Co., Holland, Mich.
HomEase Prods. Div., Inc., Paterson, N. J.
Howell Eng. Corp., Oregon, Ill.
Hubbard Co., Minneapolis, Minn.
Hy-Lo Burner Co., Inc., Eddington, Pa.
Hyle Oil Burner Co., Catonsville, Md.
Illinois Iron & Bolt Co., Chicago, Ill.
International Heater Co., Utica, N. Y.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Jackson & Church Co., Saginaw, Mich.
Jenkins Eng. Co., Seattle 1, Wash.
Johnson Co., S. T., Oakland, Calif.
Keil's, Wilmington, Del.
Keith Furnace Co., Des Moines, Iowa
Kinsley Burner & Machine Co., Providence, R. I.
Kleen Heet, Inc., Chicago 12, Ill.
Kol-Master Corp., Oregon, Ill.
Ko-Z-Aire Prods., Inc., Rad Oak, Iowa
Kresky Mfg. Co., Inc., Petaluma, Calif.
Kresno-Stamm Mfg. Co., Palisades Park, N. J.
Laco Oil Burner Co., Inc., Griswold, Iowa
Lamson Oil Corp., Providence 5, R. I.
La Salle Oil Burner Co., Inc., Seattle 3, Wash.
Lennox Furnace Co., Marshalltown, Iowa
Lynn Prods. Co., Lynn, Mass.

Macleod Co., Cincinnati 22, Ohio
McPherson Furnace Co., Marshalltown, Iowa
Madsen Service, Minneapolis, Minn.
Majestic Co., Inc., Huntington, Ind.
Major Oil Burner Co., Philadelphia 22, Pa.
Malleable Iron Fittings Co., Branford, Conn.
Mar-Coil Heater Co., Union City, N. J.
Marietta Metal Prods. Corp., Marietta, Pa.
Marnis Oil Co., Inc., New York 51, N. Y.
Master Automatic Oil Burner Co., Kansas City 3, Kan.
May Oil Burner Corp., Baltimore 30, Md.
Mayflower Air-Conditioners, Inc., St. Paul 6, Minn.
Mechanical Prods. Co., Seattle 4, Wash.
Merit Oil Heating Corp., Mt. Vernon, N. Y.
Messer Co., Inc., The, Newark 7, N. J.
Metro Oil Burner Mfg. Co., Inc., Easthampton, Mass.
Meyer Furnace Co., Peoria 2, Ill.
Middleton & Meads Co., Inc., Baltimore 2, Md.
Modern Heat, Inc., Philadelphia 4, Pa.
Montag Stove & Furnace Works, Portland 17, Ore.
Morrison Steel Prods. Inc., Buffalo 7, N. Y.
Mt. Hawley Mfg. Co., Peoria 4, Ill.
Mueller Furnace Co., Milwaukee 15, Wisc.
National Airoil Burner Co., Inc., Philadelphia 34, Pa.
National Home Eqpt. Co., New York 7, N. Y.
National Oil Corp., Richmond, Va.
National Rad. Co., Johnstown, Pa.
Niagara Furnace Div., Cleveland 13, Ohio
Noble Fuel Oil Burner Co., Chicago 22, Ill.
Nola Oil Burner Co., New Orleans 5, La.
Norge Heat Div., Kalamazoo, Mich.
North American Mfg. Co., Cleveland 2, Ohio
Northern New Jersey Oil Co., Newark, N. J.
Norwalk Air Conditioning Corp., The, So. Norwalk, Conn.
Northwest Fdry. & Furnace Co., Portland 2, Ore.
Nu-Way Corp., The, Rock Island, Ill.
O'Halloran Industries, Detroit 4, Mich.
Oil-Elec-Tric Co., St. Paul 4, Minn.
Oil Eqpt. Laboratories, Inc., Elizabeth, N. J.
Oil Gas Generator Burner, Inc., New Castle, Pa.
Oil Heating Economy Corp., East Boston, Mass.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Olson & Co., Arthur A., Canfield, Ohio
Pacific Automatic Htg. Co., Seattle, Wash.
Paragon Oil Burner Corp., Brooklyn 22, N. Y.
Park Oil Burner, Atlantic City, N. J.
Patten Co., J. V., Sycamore, Ill.
Peerless Heater Div., Boyertown, Pa.
Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.
Perfection Stove Co., Cleveland 4, Ohio
Petro, Cleveland 11, Ohio
Pilgrim Oil Burner Co., Hartford, Conn.
Portmar Boiler Co., Inc., Brooklyn 15, N. Y.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Premier Furnace Co., Dowagiac, Mich.
Quiet Automatic Burner Corp., Newark 4, N. J.
Quiet Heet Mfg. Corp., Newark 5, N. J.
Rackliffe Oil Co., New Britain, Conn.
Radiant-Aire Corp., Michigan City, Ind.
Radiant Utilities Corp., Brooklyn 14, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Rayfield Co., C. L., Chicago 8, Ill.
Red Wing Oil Burner Co., Medford, Mass.
Reif-Rexoil, Inc., Buffalo 3, N. Y.
Robot Auto-Heat Corp., The, Middletown, Conn.
Ronci Machine Co., Centredale 11, R. I.
Rossoe Mfg. Co., Inc., Seattle, Wash.
Round Oak Co., Inc., Dowagiac, Mich.
Russo Inc., Thomas D., Boston 31, Mass.
S-Del Co., The, Berwyn, Pa.
S. K. Co., Inc., The, Camden, N. J.
Sandberg Mfg. Co., Portland 10, Ore.
Schurs Oil Burner Co., Los Angeles 1, Calif.
Schwab Safe Co., Lafayette, Ind.
Scott-Newcomb, Inc., St. Louis 19, Mo.
Selectrol Eng. Co., Brooklyn 23, N. Y.
Siemon Mfg. Co., Kansas City 8, Mo.
Sigwald Eng. Co., Minneapolis, Minn.
Silent Automatic Prods., Jackson, Mich.
Silent Flame Mfg. Co., Inc., New York 72, N. Y.
Silent Glow Oil Corp., Hartford 6, Conn.
Simplex Oil Heating Corp., Philadelphia 11, Pa.
Sinclair Refining Co., New York, N. Y.
Smith Corp., A. O., Milwaukee 1, Wis.
Sorenson-Vana Corp., Omaha, Nebr.
Souther Iron Co., St. Louis 20, Mo.
Southern Heater Co., Compton, Calif.
Standard Arcoil Corp., Newark 8, N. J.
Steel Prods., Inc., West Haven, Conn.
Stewart Oil Burner Co., Hanover, Pa.
Stutzman Oil Burner Co., Clifton Heights, Pa.
Sunbeam Oil Burner Mfg. Corp., Bronx, N. Y.
Sundstrand Eng. Co., Rockford, Ill.
Sunland Refining Corp., Fresno, Calif.
Sun-Ray Burner Mfg. Corp., Jamaica, N. Y.
Super Oil Heater Co., Hartford, Conn.
Swirling Oil Burner Mfg. Corp., Long Island City 6, N. Y.
Synchronous Flame, Inc., Chicago 4, Ill.
Syncromatic Corp., Watertown, Wisc.
Thatcher Furnace Co., Garwood, N. J.
Therm Gas Generator Co., Inc., Seattle, Wash.
Thermo-Prods., Inc., No. Judson, Ind.
Timken Silent Automatic Div., Jackson, Mich.
Tjernlund Mfg. Co., St. Paul 8, Minn.
Todd Shipyards Corp., Elmhurst, N. Y.
Toridheet Div., Cleveland 2, Ohio
Trenton Htg. Mfg. Co., Trenton, Mich.
Tru-Heet Co., Trenton, N. J.
Tubing Appliance Co., Inc., Los Angeles 45, Calif.
Tur-Bin Corp., Baltimore 2, Md.
Twin Control Burner Mfg. Co., New York 67, N. Y.
U. S. Burner Div., Wethersfield, Conn.
U. S. Machine Div., Lebanon, Ind.
U. S. Petroleum Co., Clifton, N. J.
U. S. Rad. Corp., Detroit 26, Mich.
Viking Oil Co., Milwaukee, Wisc.
Volcano Burner Corp., New York 61, N. Y.
Waltham Oil Burner Co., E. Boston, Mass.
Waterman-Waterbury Co., Minneapolis, Minn.
Wayne Home Eqpt. Co., Inc., Ft. Wayne 4, Ind.
Weatherall Eng. Inc., Providence, R. I.
Westchester Home Eqpt. Co., Bronx, N. Y.
West Coast Quiet Heet, Inc., Portland, Ore.
White Fuel Corp., So. Boston, Mass.
Will-Burt Co., The, Orrville, Ohio
Williams Automatic, Inc., White Plains, N. Y.
Williams Div., Bloomington, Ill.
Williamson Heater Co., The, Cincinnati 9, Ohio
Winston Co., Inc., Newark, N. J.
Winston Co. of Mass., Boston 18, Mass.
Wisconsin Oil Burner Co., Madison 5, Wisc.
York-Shipley, Inc., York, Pa.

Horizontal Rotary Cup

Caloroil Burner Corp., Hartford, Conn.
Eds-Wil Burner Corp., Chicago, Ill.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Iron Fireman Mfg. Co., Cleveland, Ohio
Johnson Co., S. T., Oakland, Calif.
Lancaster Heat Transfer Co., Inc., Brooklyn 1, N. Y.
Macleod Co., Cincinnati 22, Ohio
National Oil Burner Co. of New York, Inc., Brooklyn 17, N. Y.
Pacific Oil Co., Fall River, Mass.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Reif-Rexoil, Inc., Buffalo 3, N. Y.
Silent Glow Oil Corp., Hartford 6, Conn.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.
Staffco Eng. Co., Chicago 38, Ill.
Todd Shipyards Corp., Elmhurst, N. Y.
York-Shipley, Inc., York, Pa.

Low Pressure, Gun

Airflame, Inc., Waukegan, Ill.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
Combustioneer Div., Springfield, Ohio
Engineer Co., The, New York 6, N. Y.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Flame-Master Co., Inc., Chicago 18, Ill.
Hart Heat Div., Peoria 2, Ill.
Hy-Lo Burner Co., Eddington, Pa.
Majestic Co., Inc., The, Huntington, Ind.
Scott-Newcomb, Inc., St. Louis 19, Mo.
U. S. Machine Div., Lebanon, Ind.
Wayne Home Eqpt. Co., Fort Wayne, Ind.
Weatherall Eng., Inc., Providence, R. I.
Williams Div., Bloomington, Ill.

Pot, Vaporizing

Allen Mfg. Co., Nashville 1, Tenn.
American Furnace Co., St. Louis 10, Mo.
Barridon Oil Burner Corp., Hartford, Conn.
Beyer Oil Burner Co., Rosamond, Calif.
Boston Machine Works Co., Lynn, Mass.

Brandenburg Industries, Inc., Baltimore 9, Md.
Breese Burners, Inc., Santa Fe, N. M.
Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Cary Mfg. Co., Waupaca, Wisc.
Century Eng. Corp., Cedar Rapids, Iowa
Chandler Co., Cedar Rapids, Iowa
Crane Co., Chicago 5, Ill.
Delco Appliance Div., Rochester, N. Y.
Domestic Mfg. Co., Seattle, Wash.
Dornback Furnace & Fdry. Co., Cleveland 8, Ohio
Duo-Therm Div., Lansing 3, Mich.
Faultless Oil Burner Co., St. Albans, L. I., N. Y.
Hall-Neal Furnace Co., Indianapolis, Ind.
Holland Furnace Co., Holland, Mich.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Kleer Kleen Mfg. Co., Oakland, Calif.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Laco Oil Burner Co., Inc., Griswold, Ind.
Little Burner Co., Inc., San Rafael, Calif.
Lonergan Mfg. Co., Albion, Mich.
Mason Machine Co., Inc., York, Pa.
Meyer Furnace Co., Peoria 2, Ill.
Michigan Burner Co., Detroit 28, Mich.
Miller Co., The, Meriden, Conn.
Norge Heat Div., Kalamazoo, Mich.
Northwest Metal Mfg. Co., Mitchell, S. D.
Northwest Metal Prods. Inc., Seattle 4, Wash.
Oran Co., Columbus, Ohio
Prentiss Wabers Prods. Co., Brockton, Mass.
Quaker Mfg. Co., Chicago 10, Ill.
Quincy Stove Mfg. Co., Quincy, Ill.
Reliance Prods. Corp., Portland 14, Ore.
Safety Prods. Co., Brockton, Mass.
Sam-Bee Oil Burner Co., Centralia, Ill.
Siegler Enamel Range Co., Centralia, Ill.
Silent Sioux Corp., Orange City, Iowa
Smith's Htg., Inc., Kinston, N. C.
Standard Utilities Corp., Newark 5, N. J.
Sunland Refining Corp., Fresno, Calif.
Super Oil Heater Co., Hartford, Conn.
Sure Heat Stove Co., Plano, Texas
Therm Gas Generator Co., Inc., Seattle, Wash.
Trenton Htg. Mfg. Co., Trenton, Mich.

Shell, Vaporizing

Alasco Burner Co., Inc., Wincehendon, Mass.
Anchor Div., New Albany, Ind.
Auburn Burner Co., Auburn, Ind.
Automatic Burner Corp., Chicago 12, Ill.
Barridon Oil Burner Corp., Hartford, Conn.
Bland Burner Co., Hartford, Conn.
Caloroil Burner Corp., Hartford, Conn.
Carlton Oil Burner Co., Hartford 3, Conn.
Florence Stove Co., Gardner, Mass.
Gem Giant Oil Burner Co., Inc., Westmoreland, N. Y.
Hillier's Oil Htg. Co., Lodi, Wisc.
Kinsley Burner & Machine Co., Providence, R. I.
Kresno-Stamm Mfg. Co., Palisades Park, N. J.
Lynn Prods. Co., Lynn, Mass.
Metro Oil Burner Mfg. Co., Inc., Easthampton, Mass.
O'Halloran Industries, Detroit 4, Mich.
Pacific Oil Co., Fall River, Mass.
Pilgrim Oil Burner Co., Hartford, Conn.
Safety Blue Flame Oil Burner Mfg. Co., Brockton, Mass.
Silent Glow Oil Corp., Hartford 6, Conn.
Smith's Heating, Inc., Kingston, N. C.
Super Oil Heater Co., Hartford, Conn.
Victor Oil Burner Mfg. Co., Hartford, Conn.
Winston Co., Inc., Newark, N. J.

Wall—Flame Vertical Rotary

Crown Petroleum Corp., Hartford, Conn.
Fluid Heat Div., Baltimore 24, Md.
O'Halloran Industries, Detroit 4, Mich.
Pacific Oil Co., Fall River, Mass.
Safety Prods. Co., Brockton, Mass.
Timken Silent Automatic Div., Jackson, Mich.
Toridheet Div., Cleveland 2, Ohio
Viking Oil Co., Milwaukee, Wisc.

Oilburners, Commercial

Combination Oil-Gas Burners

Cleaver-Brooks Co., Milwaukee 12, Wisc.
Mettler Co., Inc., The, Los Angeles 63, Calif.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Reif-Rexoil, Inc., Buffalo 3, N. Y.
Synchronous Flame, Inc., Chicago 4, Ill.
Vapofier Corp., Chicago 4, Ill.

High Pressure, Gun

Acme Oil Burner Co., Inc., Cedar Rapids, Iowa
Airflame, Inc., Waukegan, Ill.
Aldrich Co., Wyoming, Ill.
Allied Eng. Co., Allston 34, Mass.
American Mohawk Co., Inc., New York 14, N. Y.
Anchor Div., New Albany, Ind.
Anthony Co., Long Island City 1, N. Y.
Armstrong Furnace Co., Columbus 12, Ohio
Aston Prods. Inc., Hazel Park, Mich.
Atlas Mfg. Corp., Brooklyn, N. Y.
Auburn Burner Co., Auburn, Ind.
Automatic Burner Corp., Chicago 12, Ill.
Beck Eng. Combustibles Ko., St. Louis 6, Mo.
Beckett Corp., R. W., Elyria, Ohio
Bethlehem Fdry. & Machine Co., Bethlehem, Pa.
Bettendorf Oil Burner Co., Marshalltown, Iowa
Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Carlin Co., Wethersfield, Conn.
Century Eng. Corp., Cedar Rapids, Iowa
Chalmers Oil Burner Co., Minneapolis, Minn.
Chandler Co., Cedar Rapids, Iowa
Cleaver-Brooks Co., Milwaukee 12, Wisc.
Columbia Boiler Co., Pottstown, Pa.
Connelley Co., St. Louis 3, Mo.
Crane Co., Chicago 40, Ill.
Delco Appliance Div., Rochester, N. Y.
Delta Htg. Corp., Trenton 8, N. J.
Dewey-Shepard Boiler Co., Indianapolis, Ind.
Diamond Iron Works, Inc., Minneapolis 11, Minn.
Diesel Oil Burner Corp. of N. Y., Jamaica 5, N. Y.
Eckhart Mfg. Co., Inc., Union, N. J.
Eclipse Fuel Eng. Co., Rockford, Ill.
Electric Furnace-Man, Inc., Emmaus, Pa.
Electrol Burner Mfg. Co., Inc., Rutherford, N. J.
Enico Prods., Detroit 35, Mich.
Ex Cel Co., Dowagiac, Mich.
Fairfield Oil Htg. Co., Inc., Greenwich, Conn.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Federal Oil Burner Co., Inc., Philadelphia 4, Pa.
Fitzgibbons Boiler Co., Inc., New York, N. Y.
Flame-Master Co., Inc., Chicago 18, Ill.
Fluid Heat Div., Baltimore 24, Md.
Fuel Savers, Inc., Harrisburg, Pa.
Gem Fuel Oil Burners, Frankfort, Ky.
General Automatic Prods. Corp., Baltimore, Md.
General Machine Co., Inc., Emmaus, Pa.
General Oil Htg. Corp., W. New York, N. J.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Granberg Corp., Oakland, Calif.
Greene & Hodgson, Inc., Providence 5, R. I.
Greenwood Eng. Co., Inc., Baltimore 30, Md.
Hall-Neal Furnace Co., Indianapolis, Ind.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Hart Heat Div., Peoria, Ill.
Harvey-Whipple, Inc., Springfield, Mass.
Hayward Mfg. Co., Inc., Brooklyn 31, N. Y.
Hayward Oil Burner Corp., Cambridge 38, Mass.
Heet-Master Prod. Co., Baltimore 18, Md.
Herco Oil Burner Corp., Lancaster, Pa.
Hershey Machine & Fdry Co., Manheim, Pa.
HomEase Products Div., Inc., Paterson, N. J.
Illinois Iron & Bolt Co., Carpentersville, Ill.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Jackson & Church Co., Saginaw, Mich.
Johnson Co., S. T., Oakland, Calif.
Kleen Heet, Inc., Chicago 12, Ill.
Kol-Master Corp., Oregon, Ill.
Ko-Z-Aire Prods., Inc., Red Oak, Iowa
Laco Oil Burner Co., Inc., Griswold, Iowa
Lennox Furnace Co., Marshalltown, Iowa
Lynn Prods. Co., Lynn, Mass.
Madsen Service, Minneapolis, Minn.
Malleable Iron Fittings Co., Branford, Conn.
MarCoil Heater Co., Union City, N. J.
Marietta Metal Prods. Corp., Marietta, Pa.
Messer Co., Inc., The, Newark 7, N. J.
Mettler Co., Inc., The, Los Angeles 63, Calif.
Meyer Furnace Co., Peoria 2, Ill.
Modern Heat, Inc., Philadelphia 4, Pa.
Montag Stove & Furnace Works, Portland 17, Ore.
Mt. Hawley Mfg. Co., Peoria 4, Ill.
Norge Heat Div., Kalamazoo, Mich.

North American Mfg. Co., The, Cleveland 5, Ohio
Norwalk Airconditioning Corp., The, So. Norwalk, Conn.
Nu-Way Corp., The, Rock Island, Ill.
O'Halloran Industries, Detroit 4, Mich.
Oil-Elec-Tric Co., St. Paul 4, Minn.
Oil Eqpt. Laboratories, Inc., Elizabeth, N. J.
Paragon Oil Burner Corp., Brooklyn 22, N. Y.
Peabody Eng. Corp., New York 36, N. Y.
Perfection Stove Co., Cleveland 4, Ohio
Petro, Cleveland 11, Ohio
Petrol Oil Burner Mfg. Co., Inc., Malden 48, Mass.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Premier Furnace Co., Dowagiac, Mich.
Quiet Automatic Burner Corp., Newark 4, N. J.
Quiet Heet Mfg. Corp., Newark 5, N. J.
Radiant Utilities Corp., Brooklyn 14, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Rayfield Co., C. L., Chicago 8, Ill.
Red Wing Oil Burner Co., Medford, Mass.
Reif-Rexoil, Inc., Buffalo 3, N. Y.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Rockwell Co., W. S., Fairfield, Conn.
Ronci Machine Co., Centredale 11, R. I.
Russo Inc., Thomas D., Boston 31, Mass.
S.K. Co., Inc., The, Camden, N. J.
Schurs Oil Burner Co., Los Angeles 1, Calif.
Siemon Mfg. Co., Kansas City 8, Mo.
Silent Flame Mfg. Co., Inc., New York 72, N. Y.
Silent Glow Oil Corp., Hartford 6, Conn.
Standard Arcoil Corp., Newark 8, N. J.
Stewart Oil Burner Co., Hanover, Pa.
Stout & Sons, David, St. Louis 17, Mo.
Sun-Ray Burner Mfg. Corp., Jamaica, N. Y.
Sundstrand Eng. Co., Rockford, Ill.
Synchronous Flame, Inc., Chicago 4, Ill.
Thatcher Furnace Co., Garwood, N. J.
Tjernlund Mfg. Co., St. Paul 14, Minn.
Todd Shipyards Corp., Elmhurst, N. Y.
Toridheet Div., Cleveland 2, Ohio
Tru-Heet Co., Trenton, N. J.
Twin Control Burner Mfg. Co., New York 67, N. Y.
U.S. Burner Div., Wethersfield, Conn.
U.S. Machine Div., Lebanon, Ind.
U.S. Radiator Corp., Detroit, Mich.
Viking Oil Co., Milwaukee, Wisc.
Volcano Burner Corp., New York 61, N. Y.
Waltham Oil Burner Co., E. Boston, Mass.
Wayne Home Eqpt. Co., Inc., Ft. Wayne 4, Ind.
Weatherall Eng., Inc., Providence, R. I.
Will-Bert Co., The, Orrville, Ohio
Williams Div., Bloomington, Ill.
Winston Co., Inc., Newark, N. J.
Wisconsin Oil Burner Co., Madison 5, Wisc.
Zink Co., John, Tulsa, Okla.

Horizontal Rotary Cup

Ace Eng. Co., Chicago 8, Ill.
Chalmers Oil Burner Co., Minneapolis, Minn.
Enterprise Engine & Machine Co., San Francisco 10, Calif.
Federal Oil Burner Co., Inc., Philadelphia 4, Pa.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Johnson Co., S. T., Oakland, Calif.
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
National Airoil Burner Co., Philadelphia 34, Pa.
National Oil Burner Co. of N. Y., Inc., Brooklyn, N. Y.
Petro, Cleveland 11, Ohio
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.
Staffco Eng. Co., Chicago 38, Ill.
Superior Combustion Industries, Inc., New York, N. Y.
Todd Shipyards Corp., Elmhurst, N. Y.
York-Shipley, Inc., York, Pa.

Low Pressure, Gun

Airflame, Inc., Waukegan, Ill.
Anthony Co., Long Island City 1, N. Y.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Flame-Master Co., Inc., Chicago 18, Ill.
North American Mfg. Co., The, Cleveland 5, Ohio
Peabody Eng. Corp., New York 36, N. Y.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Rockwell Co., W. S., Fairfield, Conn.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.
U. S. Machine Div., Lebanon, Ind.
Weatherall Eng. Inc., Providence, R. I.
Williams Div., Bloomington, Ill.

Oilburners, Residual

Combination Oil—Gasburners

Ace Eng. Co., Chicago 8, Ill.
Lundt, Inc., Ernest, Little Falls, N. J.
Staffco Eng. Co., Chicago 38, Ill.
Todd Shipyards Corp., Elmhurst, N. Y.

Horizontal Rotary Cup, Air-Driven

Fano-Flame Oil Burner Co., Huntington Park, Calif.
Johnston Bros., Inc., Ferrysburg, Mich.
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
National Airoil Burner Co., Inc., Philadelphia 34, Pa.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.

Horizontal Rotary Cup, Motor-Driven

Ace Eng. Co., Chicago 8, Ill.
Best Combustion Eqpt. Co., Inc., W. N., Carlstadt, N. J.
Chalmers Oil Burner Co., Minneapolis, Minn.
Eds-Wil Burner Corp., Chicago, Ill.
Enterprise Engine & Machine Co., San Francisco 10, Calif.
Esso Standard Oil Co., New York 19, N. Y.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Federal Oil Burner Co., Inc., Philadelphia 4, Pa.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Johnson Co., S. T., Oakland, Calif.
Johnston Bros., Inc., Ferrysburg, Mich.
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
National Airoil Burner Co., Inc., Philadelphia 34, Pa.
National Oil Burner Co. of N. Y., Inc., Brooklyn, N. Y.
Petro, Cleveland 11, Ohio
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Rayfield Co., C. L., Chicago 8, Ill.
Reif-Rexoil, Inc., Buffalo 3, N. Y.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.
Silver Heat Oil Burner Co., W. Philadelphia 43, Pa.
Staffco Eng. Co., Chicago 38, Ill.
Steel Prods., Inc., W. Haven, Conn.
Superior Combustion Industries, Inc., New York, N. Y.
Thatcher Furnace Co., Garwood, N. J.
Todd Shipyards Corp., Elmsurst, N. Y.
Waterfilm Boilers, Inc., Jersey City, N. J.
Westchester Home Eqpt. Co., Inc., New York, N. Y.
Williams Bros. & Miller, Inc., E. Chicago, Ind.
York-Shipley, Inc., York, Pa.

Horizontal Rotary Cup, Steam-Driven

Best Combustion Eqpt. Co., Inc., W. N., Carlstadt, N. J.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
National Airoil Burner Co., Inc., Philadelphia 34, Pa.
Ray Oil Burner Co., San Francisco 12, Calif.

Steam or Air Atomizing

Anthony Co., Long Island City, 1, N. Y.
Best Combustion Eqpt. Co., Inc., W. N., Carlstadt, N. J.
Billow Corp., Chicago 6, Ill.
Cleaver-Brooks Co., Milwaukee 12, Wisc.
Coppus Eng. Corp., Worcester 2, Mass.
Eclipse Fuel Eng. Co., Rockford, Ill.
Engineer Co., The, New York 3, N. Y.
Faber Eng. Co., Inc., Philadelphia, Pa.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Federal Oil Burner Co., Inc., Philadelphia 4, Pa.
Gem Industrial Oil Burners, Frankfort, Ky.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Hauck Mfg. Co., Brooklyn 15, N. Y.
Lammert & Mann Co., Chicago 12, Ill.
Leahy Mfg. Co., Los Angeles 21, Calif.
Lientz & Co., B. P., Kansas City 42, Mo.
Maxon Premix Burner Co., Muncie, Ind.
Mettler Co., Inc., The, Los Angeles 63, Calif.
National Airoil Burner Co., Inc., Philadelphia 34, Pa.
North American Mfg. Co., The, Cleveland 5, Ohio
Orr & Sembower, Inc., Reading, Pa.
Peabody Eng. Corp., New York 36, N. Y.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Rockwell Co., W. S., Fairfield, Conn.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.

Staples & Pfeiffer, San Francisco 7, Calif.
Stout & Sons, David, St. Louis 17, Mo.
Todd Shipyards Corp., Elmhurst, N. Y.
Webster Eng. Co., Tulsa, Okla.
Wilgus Mfg. Co., Los Angeles 21, Calif.
Woolley Co., E. L., Pawtucket, R. I.
Zink Co., John, Tulsa, Okla.

Vaporizing (Gas Generator)

Vapofier Corp., Chicago 43, Ill.

Oil Delivery

Automatic Systems

Bowser, Inc., Ft. Wayne, Ind.
Degree Day Systems, Woodside, N. Y.
Hidy & Co., Elmo D., Cincinnati 36, Ohio
Kol-Master Corp., Oregon, Ill.
Measurement Methods Co., Evanston, Ill.
Scully Signal Co., Milrose, Mass.

Emergency Valves

Betts Machine Co., Warren, Pa.

Hose

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
Bowser, Inc., Ft. Wayne, Ind.
Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Carlyle Rubber Co., Inc., New York 7, N. Y.
Electric Hose & Rubber, Wilmington 99, Del.
Erie Meter Systems, Erie 6, Pa.
Gasoline & Oil Eqpt. Co., New Haven, Conn.
Goodall Rubber Co., Trenton 4, N. J.
Goodrich Co., B. F., Akron, Ohio
Goodyear Tire & Rubber Co., Akron, Ohio
Hamilton Rubber Mfg. Corp., Trenton 3, N. J.
Hewitt-Robins, Inc., Stamford, Conn.
International Metal Hose Co., Cleveland 3, Ohio
Metal Hose & Tubing Co., Dover, N. J.
Quaker Rubber Corp., Philadelphia 24, Pa.
Southern Tank & Mfg., Inc., Owensboro, Ky.
U. S. Rubber Co., New York 20, N. Y.

Hose Line Couplings

Mead Cornell & Co., Cleveland 7, Ohio

Hose Nozzles

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
Bowser, Inc., Ft. Wayne, Ind.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Erie Meter Systems, Inc., Erie 6, Pa.
Gasoline & Oil Eqpt. Co., New Haven, Conn.
Goodall Rubber Co., Trenton 4, N. J.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Philadelphia Valve Co., Philadelphia 34, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Scully Signal Co., Cambridge 4, Mass. (Spouts)
Southern Tank & Mfg., Inc., Owensboro, Ky.
Wheaton Brass Works, Union, N. J.

Hose Reels, Hand

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
American Steel Works, Kansas City, Mo.
Ardmore Prods. Div., Chicago 12, Ill.
Bowser, Inc., Ft. Wayne, Ind.
Columbian Steel Tank Co., Kansas City 1, Mo.
Erie Meter Systems, Inc., Erie 6, Pa.
Gasoline & Oil Eqpt. Co., New Haven, Conn.
Hannay & Son, Inc., Clifford B., Westerlo, N. Y.
Morrison Bros. Co., Dubuque, Iowa
Philadelphia Valve Co., Philadelphia 34, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Southern Tank & Mfg., Inc., Owensboro, Ky.

Hose Reels, Power

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
American Steel Works, Kansas City, Mo.
Ardmore Prods. Div., Chicago 12, Ill.
Bowser, Inc., Ft. Wyane, Ind.
Columbian Steel Tank Co., Kansas City 1, Mo.
Erie Meter Systems, Inc., Erie 6, Pa.
Gasoline & Oil Eqpt. Co., New Haven, Conn.
Hannay & Son, Inc., Clifford B., Westerlo, N. Y.
Peerless Trailer & Truck Service, Inc., Portland 14, Ore.
Power Reels, Inc., Buffalo 22, N. Y.
Philadelphia Valve Co., Philadelphia 34, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Southern Tank & Mfg., Inc., Owensboro, Ky.
Wishman Co., R. H., Buffalo 9, N. Y.

Loaders, Tank Truck

Oil Eqpt. Mfg. Co., Inc., Louisville 11, Ky.

Loading Rack Equipment

Wheaton Brass Works, Union, N. J.

Manifold Valves

Betts Machine Co., Warren, Pa.
Milwaukee Valve Co., Milwaukee 7, Wisc.

Meters

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
Bowser, Inc., Ft. Wayne, Ind.
Ralph N. Brodie Co., Inc., San Leandro, Calif.
Columbian Steel Tank Co., Kansas City, Mo.
Gasoline & Oil Eqpt. Co., New Haven, Conn.
Gould Oil Burner Co., Boston, Mass.
Neptune Meter Co., New York 20, N. Y.
Rockwell Mfg. Co., Pittsburgh, Pa.
Smith Corp., A. O., Los Angeles 22, Calif.
Southern Tank & Mfg., Inc., Owensboro, Ky.

Motor Control at Nozzle

Scully Signal Co., Cambridge 4, Mass.

Power Take-Offs

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
American Steel Works, Kansas City, Mo.
Bowser, Inc., Ft. Wayne, Ind.
Chelsea Prods., Inc., Chelsea, Mich.
Columbian Steel Tank Co., Kansas City, Mo.
Gasoline & Oil Eqpt. Co., New Haven, Conn.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Southern Tank & Mfg., Inc., Owensboro, Ky.
Stow Mfg. Co., Binghamton, N. Y.

Quick Couplings

Philadelphia Valve Co., Philadelphia 34, Pa.

Throttle Control

Scully Signal Co., Cambridge 4, Mass.

Ticket Printers

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
Bowser, Inc., Ft. Wayne, Ind.
Ralph N. Brodie Co., Inc., San Leandro, Calif.
Erie Meter Systems, Inc., Erie, Pa.
Neptune Meter Co., New York 20, N. Y.
Rockwell Mfg. Co., Pittsburgh, Pa.
Smith Corp., A. O., Los Angeles 22, Calif.
Southern Tank & Mfg., Inc., Owensboro, Ky.

Tight Connections

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Gasoilair Eqpt. Co., New Haven, Conn.
Gilbert & Barker Mfg. Co., West Springfield, Mass.
Philadelphia Valve Co., Philadelphia 34, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Scully Signal Co., Melrose, Mass.
Southern Tank & Mfg., Inc., Owensboro, Ky.

Truck Axles

Eaton Mfg. Co., Cleveland 10, Ohio
Truckstell Co., The, Cleveland, Ohio

Truck Chassis

Autocar Co., Ardmore, Pa.
Chevrolet Motor Div., Detroit 2, Mich.
Dodge Div., Detroit 31, Mich.
Ford Div., Dearborn, Mich.
G.M.C. Truck & Coach Div., Pontiac 11, Mich.
Mack Motor Truck Corp., New York 1, N. Y.
Reo Motors, Inc., Lansing, Mich.
White Motor Co., Cleveland 1, Ohio

Truck Tanks

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
American Steel Works, Kansas City, Mo.

Billings, Inc., Bronx 59, N. Y.
Brown Steel Tank Co., Minneapolis 14, Minn.
Butler Mfg. Co., Kansas City 26, Mo.
Columbian Steel Tank Co., Kansas City 1, Mo.
D. & C. Eqpt. Co., Hartford 1, Conn.
Decker Bros., Hawthorne, N. J.
Farrell Mfg. Co., Joliet, Ill.
Fruehauf Trailer Co., Detroit 32, Mich.
Gasoline & Oil Eqpt. Co., New Haven, Conn.
Heil Co., The, Milwaukee 1, Wisc.
Kennedy Tank & Mfg. Co., Inc., Indianapolis, Ind.
Peerless Trailer & Truck Service, Inc., Portland 14, Ore.
Pennsylvania Furnace & Iron Co., Warren, Pa.
Philadelphia Valve Co., Philadelphia 34, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Sharpsville Steel Fabricators, Inc., Sharpsville, Pa.
Southern Tank & Mfg. Co., Owensboro, Ky.
Trailmobile Co., Cincinnati, Ohio
Triangle Tank Div., Inc., Brooklyn 22, N. Y.

Paint

Touch Up

Champion Bronze Powder & Paint Co., Chicago 12, Ill.
Minit Spray Corp., Chicago 54, Ill.
Sheffield Bronze Paint Corp., Cleveland 9, Ohio

Panels

Electric Heating

Appleman Glass Works, Bergenfield, N. J.
Continental Radiant Glass Htg., New York 16, N. Y.

Pipe & Fittings

Aluminum

Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Leggitt Co., S. H., Marshall, Mich.
Reliance Tubular Prods. Co., Cleveland 8, Ohio
Revere Copper & Brass, Inc., New York 17, N. Y.
Universal Brass Corp., Arlington, N. J.
Viking Mfg. Corp., Cleveland, Ohio
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio
Wolverine Tube Div., Detroit 26, Mich.

Brass

American Brass Co., Waterbury 20, Conn.
Best Brass Co., Marshall, Mich.
Buckeye Iron & Brass Works, Dayton 1, Ohio
C-S Brass Mfg. Co., New York 23, N. Y.
Chase Brass & Copper Co., Waterbury 20, Conn.
Couplings Co., Chicago 16, Ill.
Crane Co., Chicago 40, Ill.
Grinnell Co., Inc., Providence 1, R. I.
Leggitt Co., S. H., Marshall, Mich.
Lincoln Brass Works, Detroit 16, Mich.
Reading Tube Corp., New York 1, N. Y.
Reliance Tubular Prods. Co., Cleveland 8, Ohio
Revere Copper & Brass, Inc., New York 17, N. Y.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Triplex Heating Specialty Co., Inc., Peru, Ind.
Wayne Brass Co., Inc., Ft. Wayne ,Ind.
Weatherhead Co., The, Cleveland 8, Ohio
Wolverine Tube Div., Detroit 26, Mich.

Cast Iron

Buckeye Iron & Brass Works, Dayton 1, Ohio
Crane Co., Chicago 40, Ill.
Grinnell Co., Inc., Providence 1, R. I.
Mel Gauge Co., E. Haven, Conn.
O'Halloran Industries, Detroit 4, Mich.
Triplex Heating Specialties Co., Inc., Peru, Ind.

Copper Tube, Flexible

American Brass Co., Waterbury 20, Conn.
Chase Brass & Copper Co., Inc., Waterbury 20, Conn.
Couplings Co., Chicago 16, Ill.
Grinnell Co., Inc., Providence 1, R. I.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
Leggitt Co., S. H., Marshall, Mich.
Reading Tube Corp., New York 1, N. Y.
Reliance Tubular Prod. Co., Cleveland 8, Ohio
Revere Copper & Brass, Inc., New York 17, N. Y.
Universal Brass Corp., Arlington, N. J.
Wayne Brass Co., Inc., Ft. Wayne, Ind.

Copper Tube, Rigid

American Brass Co., Waterbury 20, Conn.
Chase Brass & Copper Co., Waterbury 20, Conn.
Grinnell Co., Inc., Providence 1, R. I.
Leggitt Co., S. H., Marshall, Mich.
Reading Tube Corp., New York 1, N. Y.
Reliance Tubular Prod. Co., Cleveland 8, Ohio
Revere Copper & Brass, Inc., New York 17, N. Y.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio
Wolverine Tube Div., Detroit 26, Mich.

Covering

Armstrong Cork Co., Lancaster, Pa.
Johns-Manville Corp., New York 16, N. Y.

Insulation

Armstrong Cork Co., Lancaster, Pa.
Carlyle Rubber Co., Inc., New York 7, N. Y.
Corbman Bros. Co., Inc., Philadelphia 32, Pa.
Johns-Manville Corp., New York 16, N. Y.
Sall Mountain Co., Hamilton, Ohio
Zonolite Co., Chicago 3, Ill.

Joint Compound

Buckeye Iron & Brass Works, Dayton 1, Ohio
Crane Co., Chicago 40, Ill.
Crane Packing Co., Chicago 13, Ill.
Grinnell Co., Inc., Providence 1, R. I.
Hercules Chemical Co., Inc.. New York 13, N. Y.
Johns-Manville Corp., New York 16, N. Y.
Key Co., E. St. Louis, Mo.
Lake Chemical Co., Chicago 12, Ill.
Leggitt Co., S. H., Marshall, Mich.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Rector Well Eqpt. Co., Inc., Houston 2, Texas
S.O.S. Prods. Co., Inc., Brooklyn 22, N. Y.
Sunshine Chemical Co., Inc., John, Chicago 6, Ill.
Weatherhead Co., The, Cleveland 8, Ohio

Plastic

Imperial Brass Mfg. Co., The, Chicago 7, Ill.

Steel

Babcock & Wilcox Co., The, New York 17, N. Y.
Capitol Mfg. & Supply Co., Columbus, Ohio
Crane Co., Chicago 40, Ill.
Excelsior Steel Furnace Co., The, Chicago 6, Ill.
Grinnell Co., Inc., Providence 1, R. I.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio
Wolverine Tube Div., Detroit 26, Mich.

Wrought Iron

Grinnell Co., Inc., Providence 1, R. I.

Preheaters, Oil

Electric

Ace Eng. Co., Chicago 8, Ill.
Anthony Co., Long Island City 1, N. Y.
Billow Corp., Chicago 6, Ill.
Eclipse Fuel Eng. Co., Rockford, Ill.
Electro-Therm, Inc., Silver Spring, Md.
Falcon Eqpt. Co., New Brighton, Pa.
Fluid Systems, Inc., New Haven, Conn.
Gabriel Boiler & Fabrication Co., Portland 9, Ore.
Hauck Mfg. Co., Brooklyn 15, N. Y.
Hayden Heater Co., Inc., Easton, Md.
Instrument Laboratory, Inc., Seattle, Wash.
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.
Staffco Eng. Co., Chicago 38, Ill.
Todd Shipyards Corp., Elmhurst, N. Y.
Trent, Inc., Philadelphia 27, Pa.
Vulcan Electric Co., Danvers, Mass.
Wells Mfg. Co., San Francisco 3, Calif.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.
Wiegand Co., Edwin L., Pittsburgh 8, Pa.
Woolley Co., E. L., Pawtucket, R. I
York-Shipley Mfg. Co., York, Pa.

Gas Fired

Davis Eng. Corp., New York 20, N. Y.

Hot Water (Under the Water Line)

Alstrom Corp., New York 60, N. Y.
American District Steam Co., Inc., N. Tonawanda, N. Y.
American Tube Prods., Inc., Natick, R. I.
Anthony Co., Long Island City 1, N. Y.
Bell & Gossett Co., Morton Grove, Ill.
Bernstrom, Inc., C. R., Providence, R. I.
Chalmers Oil Burner Co., Minneapolis, Minn.
Crotty Mfg. Co., Flushing, N. Y. (Water Wall)
Davis Eng. Corp., New York 33, N. Y.
Gabriel Boiler & Fabrication Co., Portland 9, Ore.
General Fittings Co., Providence 5, R. I.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
Lancaster Heat Transfer Co., Inc., Brookyln, N. Y.
Manning & Lewis Eng. Co., Newark 4, N. J.
Patterson-Kelley Co., Inc., The, E. Stroudsburg, Pa.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Rempe Co., Chicago 12, Ill.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.
Staffco Eng. Co., Chicago 38, Ill.
Superior Combustion Industries, Inc., New York, N. Y.
Taco Heaters, Inc., Providence, R. I.
Thrush & Co., H. A., Peru, Ind.
Water Tube Boiler & Tank Co., Chicago, Ill.
Yula Water Heaters, Inc., New York 63, N. Y.

Jacketed Pipe & Fittings

Parks-Cramer Co., Fitchburg, Mass.

Non-Contaminating

Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.

Pipeline Resistance

Falcon Eqpt. Co., New Brighton, Pa.
Fluid Systems, Inc., New Haven, Conn.

Steam, High Pressure

Alstrom Corp., New York 60, N. Y.
American District Steam Co., Inc., N. Tonawanda, N. Y.
Anthony Co., Long Island City 1, N. Y.
Bell & Gossett Co., Morton Grove, Ill.
Biggs Boiler Works Co., Akron, Ohio
Billow Corp., Chicago 6, Ill.
Davis Eng. Corp., New York 33, N. Y.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Gabriel Boiler & Fabrication Co., Portland 9, Ore.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Hauck Mfg. Co., Brooklyn 15, N. Y.
Johnson Corp., The, Three Rivers, Mich.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
Leahy Mfg. Co., Los Angeles 21, Calif.
Lientz & Co., B. P., Kansas City 42, Mo.
Manning & Lewis Eng. Co., Newark 4, N. J.
Patterson-Kelley Co., Inc., The, E. Stroudsburg, Pa.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Rempe Co., Chicago 12, Ill.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.
Staffco Eng. Co., Chicago 38, Ill.
Staples & Pfeiffer, San Francisco 7, Calif.
Superior Combustion Industries, Inc., New York, N. Y.
Water Tube Boiler & Tank Co., Chicago, Ill.
York Shipley Mfg. Co., York, Pa.
Yula Water Heaters, Inc., New York 63, N. Y.

Steam, Low Pressure

Alstrom Corp., New York 60, N. Y.
American District Steam Co., Inc., N. Tonawanda, N. Y.
Anthony Co., Long Island City 1, N. Y.
Bell & Gossett Co., Morton Grove, Ill.
Bernstrom, Inc., C. R., Providence, R. I.
Davis Eng. Corp., New York 33, N. Y.
Fano-Flame Oil Burner Co., Huntington Park, Calif.
Gabriel Boiler & Fabrication Co., Portland 9, Ore.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
B. P. Lientz & Co., Kansas City 42, Mo.
Manning & Lewis Eng. Co., Newark 4, N. J.
Patterson-Kelley Co., Inc., The, E. Stroudsburg, Pa.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Rempe Co., Chicago 12, Ill.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.
Staffco Eng. Co., Chicago 38, Ill.
Staples & Pfeiffer, San Francisco 7, Calif.
Superior Combustion Industries, Inc., New York, N. Y
Taco Heaters, Inc., Providence, R. I.
Water Tube Boiler & Tank Co., Chicago, Ill.
York-Shipley Mfg. Co., York, Pa.
Yula Water Heaters, Inc., New York 63, N. Y.

Printed Forms

Billheads

Bradford Price Book, Quincy 69, Mass.
Cromwell Printers, Inc., Albany, N. Y.
Degree Day Systems, Woodside, N. Y.
Standard Register Co., The, Dayton 1, Ohio

Budget Payment Envelopes

Wassel Organization, Inc., Westport, Conn.

Decalcomanias

Degree Day Systems, Woodside, N. Y.
Hold-Tite Valve Mfg. Co., Brooklyn 26, N. Y.
Thatcher Furnace Co., Garwood, N. J.
Williamson Heater Co., The, Cincinnati 9, Ohio

Degree-Day Cards

Degree Day Systems, Woodside, N. Y.
Kol-Master Corp., Oregon, Ill.
Measurement Methods Co., Evanston, Ill.

Degree-Day Indexes

Degree Day Systems, Woodside, N. Y.
Measurement Methods Co., Evanston, Ill.

Delivery Tickets

Cromwell Printers, Inc., Albany, N. Y.
Degree Day Systems, Woodside, N. Y.
Hano Co., Inc., Philip, New York 1, N. Y.
Moore Business Forms, Niagara Falls, N. Y.
Standard Register Co., The, Dayton 1, Ohio

Door Knob Notice Cards

Degree Day Systems, Woodside, N. Y.

Drivers' Daily Reports

Cromwell Printers, Inc., Albany, N. Y.
Degree Day Systems, Woodside, N. Y.

Fueloil Order Forms

Cromwell Printers, Inc., Albany, N. Y.
Degree Day Systems, Woodside, N. Y.
Standard Register Co., The, Dayton 1, Ohio

Oilburner Instruction Cards

Degree Day Systems, Woodside, New York

Oilburner Service Order Forms

Degree Day Systems, Woodside, N. Y.
Standard Register Co., The, Dayton 1, Ohio

Oilburner Service Record Cards

Degree Day Systems, Woodside, N. Y.

Oilbuner Service Tickets

Cromwell Printers, Inc., Albany, N. Y.
Degree Day Systems, Woodside, N. Y.

Price Charts

Degree Day Systems, Woodside, N. Y.
Taco Heaters, Inc., Providence, R. I.

Statements

Bradford Price Book, Quincy 69, Mass.
Cromwell Printers, Inc., Albany, N. Y.
Degree Day Systems, Woodside, N. Y.
Standard Register Co., The, Dayton 1, Ohio

Tank Capacity Charts

Cromwell Printers, Inc., Albany, N. Y.
Degree Day Systems, Woodside, N. Y.

Ticket Holders

Cromwell Printers, Inc., Albany, N. Y.
Degree Day Systems, Woodside, N. Y.

Pumps

Boiler Feed

Allis Chalmers Mfg. Co., Milwaukee 1, Wisc.
De Laval Steam Turbine Co., Trenton 2, N. J.
Dunham Co., C. A., Chicago, Ill.
Eclipse Fuel Eng. Co., Rockford, Ill.
Economy Pumps, Inc., Philadelphia 32, Pa.
Hoffberger Co., C., Baltimore 2, Md.
Ingersoll-Rand Co., New York 4, N. Y.
Jancuzzi Bros., Inc., Richmond, Calif.
Johnson Corp., The, Three Rivers, Mich.
Kisco Boiler & Engineering Co., St. Louis 4, Mo.
Lattner Mfg. Co., P. M., Cedar Rapids, Iowa
Schaub Eng. Co., Fred H., Chicago 23, Ill.
Skidmore Corp., St. Joseph, Mich.
Stewart Oil Burner Co., Hanover, Pa.
Stout & Sons, David, St. Louis 17, Mo.
York-Shipley Mfg. Co., York, Pa.

Bulkplants

Allis-Chalmers Mfg. Co., Milwaukee 1, Wisc.
Blackmer Pump Co., Grand Rapids, Mich.
Bowser, Inc., Ft. Wayne, Ind.
Carver Pump Co., Muscatine, Iowa
Columbian Steel Tank Co., Kansas City 1, Mo.
De Laval Steam Turbine Co., Trenton 2, N. J.
Gasoline & Oil Eqpt. Co., New Haven, Conn.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Gorman-Rupp Co., The, Mansfield, Ohio
Ingersoll-Rand Co., New York 4, N. Y.
Kraissl Co., The, Hackensack, N. J.
Marlow Pumps, Ridgewood, N. J.
Roper Corp., G. D., Rockford, Ill.
Schirmer Dornbrier Pump Co., Cleveland 14, Ohio
Viking Pump Co., Cedar Falls, Iowa

Fuel Unit

Autopulse Corp., Ludington, Mich.
De Laval Steam Turbine Co., Trenton 2, N. J.
Eclipse Fuel Eng. Co., Rockford, Ill.
Flame-Master Co., Inc., Chicago, Ill.
Kraissl Co., The, Hackensack, N. J.
Ray Oil Burner Co., San Francisco 12, Calif.
Schirmer Dornbrier Pump Co., Cleveland 14, Ohio
Schurs Oil Burner Co., Los Angeles 1, Calif.
Staffco Eng. Co., Chicago 38, Ill.
Sundstrand Machine Tool Co., Rockford, Ill.
Tuthill Pump Co., Chicago 19, Ill.
Viking Pump Co., Cedar Falls, Iowa
Webster Electric Co., Racine, Wisc.

Oil Circulating Unit

Drying Systems, Inc., Chicago 40, Ill.

Oil, Lift

A-P Controls Corp., Milwaukee, Wisc.
Autopulse Corp., Ludington, Mich.
Carver Pump Co., Muscatine, Iowa
De Laval Steam Turbine Co., Trenton 2, N. J.
Kraissl Co., The, Hackensack, N. J.
Gorman-Rupp Co., The, Mansfield, Ohio
Oil Eqpt. Mfg. Corp., New Haven, Conn.
Pentwater Machinery Co., Pentwater, Mich.
Roper Corp., G. D., Rockford, Ill.
Schirmer Dornbrier Pump Co., Cleveland 14, Ohio
Therm Gas Generator Co., Inc., Seattle, Wash.
Tuthill Pump Co., Chicago 19, Ill.
Viking Pump Co., Cedar Falls, Iowa
Webster Electric Co., Racine, Wisc.

Oil, Wall

A-P Controls Corp., Milwaukee, Wisc.
Autopulse Corp., Ludington, Mich.
Pentwater Machinery Co., Pentwater, Mich.
Viking Pump Co., Cedar Falls, Iowa

Oilburner

Autopulse Corp., Ludington, Mich.
Combustioneer Div., Springfield, Ill.
De Laval Steam Turbine Co., Trenton 2, N. J.
Flame-Master Co., Inc., Chicago 18, Ill.
HomEase Prods. Div., Inc., Paterson, N. J.
Illinois Iron & Bolt Co., Carpentersville, Ill.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Kraissl Co., The, Hackensack, N. J.
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Roper Corp., Geo. D., Rockford, Ill.
Schurs Oil Burner Co., Los Angeles 1, Calif.
Simplex Oil Htg. Corp., Philadelphia 11, Pa.
Sundstrand Machine Tool Co., Rockford, Ill.
Tuthill Pump Co., Chicago 19, Ill.
Viking Pump Co., Cedar Falls, Iowa
Webster Electric Co., Racine, Wis.

Sets, Heavy Oil

Ace Eng. Co., Chicago 8, Ill.
Billow Corp., Chicago 6, Ill.
Blackmer Pump Co., Grand Rapids 9, Mich.
Eclipse Fuel Eng. Co., Rockford, Ill.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Harvey, Inc., Sid, Valley Stream, N. Y.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Kraissl Co., The, Hackensack, N. J.
Lammert & Mann Co., Chicago 12, Ill.
Lancaster Heat Transfer Co., Inc., Brooklyn, N. Y.
Lientz & Co., B. P., Kansas City 42, Mo.
National Oil Burner Co. of N. Y., Inc., Brooklyn, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Roper Corp., Geo. D., Rockford, Ill.
Schurs Oil Burner Co., Los Angeles 1, Calif.
Staffco Eng. Co., Chicago 38, Ill.
Staples & Pfeiffer, San Francisco 7, Calif.
Tuthill Pump Co., Chicago 19, Ill.
Viking Pump Co., Cedar Falls, Iowa
Wilgus Mfg. Co., Los Angeles 21, Calif.
Woolley Co., E. L., Pawtucket, R. I.
York-Shipley Mfg. Co., York, Pa.

Sump-Pumps

Silent Flame Mfg. Co., Inc., New York 72, N. Y.
Volcano Burner Corp., New York City, N. Y.

Tank Truck

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
Blackmer Pump Co., Grand Rapids, Mich.
Bowser, Inc., Ft. Wayne, Ind.
Carver Pump Co., Muscatine, Iowa
Columbian Steel Tank Co., Kansas City 1, Mo.
Gasoline & Oil Eqpt. Co., New Haven, Conn.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Gorman-Rupp Co., The, Mansfield, Ohio
Gould Oil Burner Co., Boston, Mass.
Kraissl Co., The, Hackensack, N. J.
Marlow Pumps, Ridgewood, N. J.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Roper Corp., Geo. D., Rockford, Ill.
Schirmer Dornbrier Pump Co., Cleveland 14, Ohio
Southern Tank & Mfg. Co., Inc., Owensboro, Ky.
Viking Pump Co., Cedar Falls, Iowa
Yale & Towne Mfg. Co., Stamford, Conn.

Vacuum

Allis-Chalmers Mfg. Co., Milwaukee 1, Wisc.
Dunham Co., Chicago, Ill.
Economy Pumps, Inc., Philadelphia 32, Pa.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Ingersoll-Rand Co., New York 4, N. Y.
Kraissl Co., The, Hackensack, N. J.
National Steam Pump Co., Upper Sandusky, Ohio
Skidmore Corp., St. Joseph, Mich.
Sterling, Inc., Milwaukee 12, Wisc.

Water Circulating

Allis-Chalmers Mfg. Co., Milwaukee 1, Wisc.
Baseline Mfg. Corp., Minneapolis 23, Minn.
Bell & Gossett Co., Morton Grove, Ill.
Carver Pump Co., Muscatine, Iowa
De Laval Steam Turbine Co., Trenton 2, N. J.
Dunham Co., C. A., Chicago, Ill.
Econo Prods. Co., New York 4, N. Y.

Economy Pumps, Inc., Philadelphia 32, Pa.
Fitzgibbons Boiler Co., New York 17, N. Y.
Flame-Master Co., Inc., Chicago 18, Ill.
Fostoria Pressed Steel Corp., Fostoria, Ohio
Golden Flame Mfg. Co., Camden 3, N. J.
Gorman-Rupp Co., The, Mansfield, Ohio
Ingersoll-Rand Co., New York 4, N. Y.
Jancuzzi Bros., Inc., Richmond, Calif.
Kraissl Co., The, Hackensack, N. J.
Magnaflow Pump Corp., New York 3, N. Y.
Marlow Pumps, Ridgewood, N. J.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Piqua Machine & Mfg. Co., The, Piqua, Ohio
Skidmore Corp., St. Joseph, Mich.
Taco Heaters, Inc., Providence, R. I.
Thrush & Co., H. A., Peru, Ind.
Trane Co., The, La Crosse, Wisc.
Triplex Htg. Specialty Co., Peru, Ind.

Radiators

Baseboard

Altherm, Inc., New York 21, N. Y.
American Air Filter Co., Inc., Louisville, Ky.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Argo Co., Hartford 6, Conn.
Baseline Mfg. Corp., Minneapolis 23, Minn.
Berger Furnace Mfg. Co., Pittsburgh 6, Pa.
Brandenburg Industries, Inc., Baltimore 9, Md.
Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Brown Prods. Co., Forest Hills, N. Y.
Burnham Corp., Irvington, N. Y.
Bush Mfg. Co., Hartford, Conn.
Columbia Boiler Co., Pottstown, Pa.
Conn-State Furnace Co., Bridgeport, Conn.
Crane Co., Chicago 40, Ill.
Dixon Mfg. Co., Baltimore 2, Md.
Dunham Co., C. A., Chicago, Ill.
Dunkirk Radiator Corp., Dunkirk, N. Y.
Electriglas Corp., Bergenfield, N. J.
Fedders-Quigan Corp., Buffalo, N. Y.
Federal Boiler Co., Inc., Midland Park, N. J.
Federal Engs., Inc., Barrington, R. I.
General Automatic Prod. Corp., Baltimore, Md.
General Htg. Prods. Co., Philadelphia, Pa.
General Thriftmaster Prods., Philadelphia, Pa.
Hoff Mfg. Co., Bethany, Conn.
Kritzer Radiant Coils, Inc., Chicago 24, Ill.
National Radiator Co., The, Johnstown, Pa.
Nesbitt, Inc., John J., Philadelphia 36, Pa.
New Yorker Steel Boiler Co., Inc., Colmar, Pa.
Radiant Ray Radiation, Inc., New Britain, Conn.
Rempe Co., Chicago 12, Ill.
Republic Prods. Co., Philadelphia 36, Pa.
Rittling Corp., Buffalo 3, N. Y.
Rome-Turney Radiator Co., Rome, N. Y.
Schemenauer Mfg. Co., Holland, Ohio
Slant-Fin Radiator Corp., Brooklyn, N. Y.
Smith Co., H. B., Westfield, Mass.
Stedco Prods., Kingston, Pa.
Sterling Radiator Co., Inc., Westfield, Mass.
Therma Prods. Co., Inc., Boston 18, Mass.
Thermo Base Div., Michigan City, Ind.
Trane Co., The, La Crosse, Wisc.
Trico Baseboard Htg., Pompton Lakes, N. J.
Turbo-Ray, Inc., New Rochelle, N. Y.
Tuttle & Bailey, Inc., New Britain, Conn.
Union Asbestos & Rubber Co., Chicago, Ill.
U. S. Radiator Corp., Detroit 26, Mich.
Utica Radiator Corp., Utica, N. Y.
Valley Forge Metals Co., Lansdale, Pa.
Vulcan Radiator Co., Hartford 6, Conn.
Warren Webster & Co., Camden 5, N. J.
Weil-McLain Co., Michigan City, Ind.
Woodruff Thermo Prods., Inc., Fair Lawn, N. J.
York-Shipley, Inc., York, Pa.
Young Radiator Co., Racine, Wisc.

Coils, Copper

Bush Mfg. Co., W. Hartford, Conn.
Dunham Co., C. A., Chicago, Ill.
Kritzer Radiant Coils, Inc., Chicago 24, Ill.
Modine Mfg. Co., Racine, Wisc.
Pate Co., The, Darby, Pa.
Perfex Corp., The, Milwaukee, Wisc.
Rittling Corp., Buffalo 3, N. Y.
Trane Co., The, La Crosse, Wisc.
Young Rad. Co., Racine, Wisc.

Convectors, Copper

Airtherm Mfg. Co., St. Louis 10, Mo.
Altherm, Inc., New York 21, N. Y.
American Coils, Inc., Newark 5, N. J.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Auburn Burner Corp., Auburn, Ind.
Auto Rad. Specialty Co., Chicago 24, Ill.
Brandenburg Industries, Inc., Baltimore 9, Md.
Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Brown Prods. Co., Forest Hills, N. Y.
Bush Mfg. Co., W. Hartford, Conn.
Dunham Co., C. A., Chicago, Ill.
Federal Engs., Inc., Barrington, R. I.
General Htg. Prods. Co., Philadelphia, Pa.
Hoff Mfg. Co., Bethany, Conn.
Kramer Trenton Co., Trenton, N. J.
Modine Mfg. Co., Racine, Wisc.
National Radiator Co., The, Johnstown, Pa.
Nesbitt, Inc., John J., Philadelphia, Pa.
Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.
Perfex Corp., The, Milwaukee, Wisc.
Rempe Co., Chicago 12, Ill.
Republic Prods. Co., Philadelphia 36, Pa.
Rittling Corp., Buffalo 3, N. Y.
Rome-Turney Rad. Co., Rome, N. Y.
Therma Prods. Co., Inc., Boston 18, Mass.
Trane Co., The, La Crosse, Wisc.
Tuttle & Bailey, Inc., New Britain, Conn.
Union Asbestos & Rubber Co., Chicago, Ill.
U. S. Rad. Corp., Detroit 26, Mich.
York-Shipley Mfg. Co., York, Pa.
Young Radiator Co., Racine, Wis.

Convectors, Iron

American Air Filter, Louisville, Ky.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Fedders-Quigan Corp., Buffalo, N. Y.
National Rad. Co., The, Johnstown, Pa.
Therma Prods. Co., Inc., Boston 18, Mass.
U. S. Rad Corp., Detroit 26, Mich.

Electric Panels

Continental Radiant Glass Htg. Corp., New York 16, N. Y.
Electriglas Corp., Bergenfield, N. J.

Extended Surface, Copper

American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Baseline Mfg. Corp., Minneapolis, Minn.
Brandenburg Industries, Inc., Baltimore 9, Md.
Brown Prods. Co., Forest Hills 75, N. Y.
Bush Mfg. Co., W. Hartford, Conn.
Dunham Co., C. A., Chicago, Ill.
Kritzer Radiant Coils, Inc., Chicago 24, Ill.
Modine Mfg. Co., Racine, Wisc.
National Rad. Co., The, Johnstown, Pa.
Nesbitt, Inc., John J., Philadelphia 36, Pa.
Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.
Perfex Corp., The, Milwaukee, Wisc.
Radiant-Ray Radiation, Inc., New Britain, Conn.
Rempe Co., Chicago 12, Ill.
Rittling Corp., Buffalo 3, N. Y.
Rome-Turney Rad. Co., Rome, N. Y.
Slant-Fin Rad. Corp., Brooklyn, N. Y.
Smith Co., H. B., Westfield, Mass.
Trane Co., The, La Crosse, Wisc.
U. S. Radiator Corp., Detroit, Mich.
Young Rad. Co., Racine, Wisc.

Extended Surface, Iron

Altherm, Inc., New York 21, N. Y.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Baseline Mfg. Corp., Minneapolis 23, Minn.
Brown Prods. Co., Forest Hills, N. Y.
Bush Mfg. Co., Hartford, Conn.
Kritzer Radiant Coils, Inc., Chicago 24, Ill.
National Rad. Co., The, Johnstown, Pa.
Pilgrim Industries, Brookline 46, Mass. ("Raparound" Material)
Radiant-Ray Radiation, Inc., New Britain, Conn.
Rittling Corp., Buffalo 3, N. Y.
Slant-Fin Rad. Corp., Brooklyn, N. Y.
U. S. Radiator Corp., Detroit 26, Mich.

Standing, Cast-Iron

Altherm, Inc., New York 21, N. Y.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Burnham Corp., Irvington, N. Y.
Crane Co., Chicago 40, Ill.
Dunkirk Rad. Corp., Dunkirk, N. Y.
National Rad. Co., The, Johnstown, Pa.
U. S. Rad. Corp., Detroit 26, Mich.
Utica Rad. Corp., Utica, N. Y.
Weil-McLain Co., Michigan City, Ind.

Ranges, Oilfired

Commercial, Mechanical Oilburner

Malleable Steel Range Mfg. Corp., South Bend 21, Ind.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Washington Stove Works, Everett, Wash.

Commercial Pot Burner

Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Malleable Steel Range Mfg. Corp., South Bend 21, Ind.
Viking Mfg. Corp., Cleveland, Ohio
Washington Stove Works, Everett, Wash.

Domestic, Mechanical Oilburner

Knox Stove Works, Inc., Knoxville, Tenn.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Monarch Range Co., Beaver Dam, Wisc.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Staffco Eng. Co., Chicago 38, Ill.
Therm Gas Generator Co., Inc., Seattle, Wash.
Washington Stove Works, Everett, Wash.

Domestic, Pot Burner

Barridon Oil Burner Corp., Hartford, Conn.
Knox Stove Works, Inc., Knoxville, Tenn.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Monarch Range Co., Beaver Dam, Wisc.
Montag Stove & Furnace Works, Portland 17, Ore.
Siegler Enamel Range Co., Centralia, Ill.
Therm Gas Generator Co., Inc., Seattle, Wash.
Washington Stove Works, Everett, Wash.

Domestic, Shell Burner

Barridon Oil Burner Corp., Hartford, Conn.
Dortch Stove Works, Inc., The, Franklin, Tenn.
Florence Stove Co., Gardner, Mass.
Magic Chef, Inc., St. Louis 10, Mo.

Refractories

Castable

Babcock & Wilcox Co., New York 17, N. Y.
Carolina Refractories Co., Hartsville, S. C.
Denver Fire Clay Co., The, Denver 17, Colo.
Gem Clay Forming Co., The, Sebring, Ohio
General Refractories Co., Philadelphia, Pa.
Green Fire Brick Co., A. P., Mexico, Mo.
Harbison-Walker Refractories Co., Pittsburgh 22, Pa.
Insulating Refractories Co., San Rafael, Calif.
Insulating Refractories Corp., River Rouge 18, Mich.
Iron-Hide Sales Co., Matawan, N. J.
Johns-Manville Corp., New York 16, N. Y.
Laclede-Christy Co., St. Louis 1, Mo.
Mexico Refractories Co., Mexico, Mo.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Plibrico Firebrick Co., Chicago 14, Ill.
Ramtite Co., Chicago, Ill.
Refractory & Insulation Corp., Port Kennedy, Pa.
S.O.S. Prods. Co., Inc., Brooklyn 22, N. Y.
Schlitt & Son, Inc., Joseph A., Jersey City 4, N. J.
Walsh Refractories Corp., St. Louis 7, Mo.
Western Stove Lining Works, Mexico, Mo.

Cement

Armstrong Cork Co., Lancaster, Pa.
Babcock & Wilcox Co., New York 17, N. Y.
Carolina Refractories Co., Hartsville, S. C.
Clinton Metallic Paint Co., Clinton, N. Y.
Denver Fire Clay Co., The, Denver 17, Colo.
Gem Clay Forming Co., The, Sebring, Ohio
General Refractories Co., Philadelphia, Pa.
Grant Wilson Inc., Chicago 4, Ill.
Green Fire Brick Co., A. P., Mexico, Mo.
Harbison-Walker Refractories Co., Pittsburgh 22, Pa.
Johns-Manville Corp., New York 16, N. Y.
Laclede-Christy Co., St. Louis 1, Mo.
Mexico Refractories Co., Mexico, Mo.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Plibrico Firebrick Co., Chicago 14, Ill.
Refractory & Insulation Corp., Port Kennedy, Pa.
Refractory Specialty Co., Philadelphia 46, Pa.
S.O.S. Prods. Co., Inc., Brooklyn 22, N. Y.
Sall Mountain Co., Hamilton, Ohio
Schlitt & Son, Inc., Joseph A., Jersey City 4, N. J.
Walsh Refractories Corp., St. Louis 7, Mo.
Western Stove Lining Works, Mexico, Mo.
Zonolite Co., Chicago 3, Ill.

Chamber Back-Fill

General Refractories Co., Philadelphia, Pa.
Green Fire Brick Co., A. P., Mexico, Mo.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hyzer & Lewellyn, Southampton, Pa.
Insulating Refractories Co., San Rafael, Calif.
Insulating Refractories Corp., River Rouge, Mich.
Mexico Refractories Co., Mexico, Mo.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Peterson Co., B. A., Dowagiac, Mich.
Refractory & Insulation Corp., Port Kennedy, Pa.
Rex Roto Corp., Detroit 6, Mich.
Schlitt & Son, Inc., Joseph A., Jersey City 4, N .J.
Walsh Refractories Corp., St. Louis 7, Mo.
Zonolite Co., Chicago 3, Ill.

Fire Brick

Babcock & Wilcox Co., New York 17, N. Y.
Carolina Refractories Co., Hartsville, S. C.
Denver Fire Clay Co., The, Denver 17, Colo.
General Refractories Co., Philadelphia, Pa.
Green Fire Brick Co., A. P., Mexico, Mo.
Harbison-Walker Refractories Co., Pittsburgh 22, Pa.
Insulating Refractories Co., San Rafael, Calif.
Laclede-Christy Co., St. Louis 1, Mo.
MacLeod & Henry Co., Inc., Troy, N. Y.
Mexico Refractories Co., Mexico, Mo.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Plibrico Firebrick Co., Chicago 14, Ill.
Presbrey Refractories Corp., Taunton, Mass.
Schlitt & Son, Inc., Joseph A., Jersey City 4, N .J.
Walsh Refractories Corp., St. Louis 7, Mo.
Western Stove Lining Works, Mexico, Mo.

Fire Brick, Insulating

Armstrong Cork Co., Lancaster, Pa.
Babcock & Wilcox Co., New York 17, N. Y.
Boston Machine Works Co., Lynn, Mass.
Clinton Metallic Paint Co., Clinton, N. Y.
Denver Fire Clay Co., The, Denver 17, Colo.
Gem Clay Forming Co., The, Sebring, Ohio
General Refractories Co., Philadelphia, Pa.
Green Fire Brick Co., A. P., Mexico, Mo.
Harbison-Walker Refractories Co., Pittsburgh 22, Pa.
Insulating Refractories Co., San Rafael, Calif.
Iron-Hide Sales Co., Matawan, N. J.
Johns-Manville Corp., New York 16, N. Y.
MacLeod & Henry Co., Inc., Troy, N. Y.
Mexico Refractories Co., Mexico, Mo.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Plibrico Firebrick Co., Chicago 14, Ill.
Presbrey Refractories Corp., Taunton, Mass.
Schlitt & Son, Inc., Joseph A., Jersey City 4, N .J.
Walsh Refractories Corp., St. Louis 7, Mo.
Zonolite Co., Chicago 3, Ill.

Fire Brick, Plastics

Green Fire Brick Co., A. P., Mexico, Mo.
Mexico Refractories Co., Mexico, Mo.
Walsh Refractories Corp., St. Louis 7, Mo.

Firebox Baffles

American Clay Forming Co., Tiffin, Ohio
Bauer Oil Burner, Inc., Wilmington, Del.
Boston Machine Works Co., Lynn, Mass. (steel)
Carolina Refractories Co., Hartsville, S. C.
Denver Fire Clay Co., The, Denver 17, Colo.
Gem Clay Forming Co., The, Sebring, Ohio

General Refractories Co., Philadelphia, Pa.
Green Fire Brick Co., A. P., Mexico, Mo.
Harbison-Walker Refractories Co., Pittsburgh 22, Pa.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hyser & Lewellen, Southampton, Pa.
Insulating Refractories Co., Mexico, Mo.
Insulating Refractories Corp., River Rouge, Mich.
Insulation & Refractories Co., Williamson, N. Y. (steel)
Iron-Hide Sales Co., Matawan, N. J.
Mexico Refractories Co., Mexico, Mo.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Peterson Co., B. A., Dowagiac, Mich.
Refractory & Insulation Corp., Port Kennedy, Pa.
Rex Clay Prods. Co., The, Detroit 6, Mich.
Rex Roto Corp., Detroit 6, Mich.
S.O.S. Prods. Co., Inc., Brooklyn 22, N. Y.
Schlitt & Son, Inc., Joseph A, Jersey City 4, N. J.
U.S. Machine Div., Lebanon, Ind.
Walsh Refractories Corp., St. Louis 7, Mo.
Western Stove Lining Works, Mexico, Mo.
Zeh Co., Inc., Passaic, N. J.

Pre-cast Combustion Chambers

American Clay Forming Co., Tiffin, Ohio
Armstrong Cork Co., Lancaster, Pa.
Bard Mfg. Co., Bryan, Ohio
Boston Machine Works Co., Lynn, Mass.
Carolina Refractories Co., Hartsville, S. C.
Eastern Prod. Co., Morganville, N. J.
Federal Boiler Co., Inc., Midland Park, N. J.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
Gem Clay Forming Co., The, Sebring, Ohio
General Refractories Co., Philadelphia, Pa.
Green Fire Brick Co., A. P., Mexico, Mo.
Harbison-Walker Refractories Co., Pittsburgh 22, Pa.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hyser & Lewellen, Southampton, Pa.
Ingersoll Steel Div., Chicago 4, Ill. (steel)
Insulating Refractories Co., Mexico, Mo.
Insulating Refractories Corp., River Rouge, Mich.
Iron-Hide Sales Co., Matawan, N. J.
Kolb Refractories Co., Philadelphia 48, Pa.
Laclede-Christy Co., St. Louis 1, Mo.
Louthan Mfg. Co., The, E. Liverpool, Ohio
MacLeod & Henry Co., Inc., Troy, N. Y.
Mexico Refractories Co., Mexico, Mo.
Monogram Prods. Co., Inc., Philadelphia 4, Pa.
Nock Fire Brick Co., The, Cleveland 3, Ohio
Peterson Co., B. A., Dowagiac, Mich.
Presbrey Refractories Corp., Taunton, Mass.
Refractory & Insulation Corp., Port Kennedy, Pa.
Rex Clay Prods. Co., The, Detroit 6, Mich.
Rex Roto Corp., Detroit 6, Mich.
S.O.S. Prods. Co., Inc., Brooklyn 22, N. Y.
Schlitt & Son, Inc., Joseph A, Jersey City 4, N. J.
U.S. Machine Div., Lebanon, Ind.
Walsh Refractories Corp., St. Louis 7, Mo.
Western Stove Lining Works, Mexico, Mo.
York-Shipley Mfg. Co., York, Pa.

Reflective Paint

National Fuel Conservation Co., Inc., White Plains, N. Y.
Refractory & Insulation Corp., Port Kennedy, Pa.
S.O.S. Prods. Co., Inc., Brooklyn 22, N. Y.
Schlitt & Son, Inc., Joseph A., Jersey City 4, N.J.

Reflective Powder

Fuel Econ-O-mizer Co., Providence 5, R. I.

Stainless Steel Chambers

Conn. State Furnace Co., Bridgeport, Conn.
Ingersoll Steel Div., Chicago 4, Ill.
Mechanical Prod. Mfg. Co., Seattle 4, Wash.
Sandberg Mfg. Co., Portland 10, Ore.
Stefco Steel Co., Michigan City, Ind.

Service Truck Bodies

Holan Co., J. H., Cleveland 11, Ohio
McCabe Powers Auto Body Co., St. Louis 15, Mo.
Stahl Metal Prods., Inc., Cleveland, Ohio

Signals

Liquid, Low Level

Diamond Power Specialty Corp., Lancaster, Ohio
Liquidepth Indicators, Inc., Long Island City 1, N. Y.
McDonnell & Miller, Inc., Chicago 18, Ill.
Magnetrol, Inc., Chicago 23, Ill.
Wright-Austin Co., Detroit 7, Mich.

Smoke

Cleveland Fuel Eqpt. Co., Cleveland 9, Ohio
Diamond Power Specialty Corp., Lancaster, Ohio
General Power Plant Corp, Ossining, N. Y.
Heat Timer Corp., New York 12, N. Y.
Preferred Utilities Mfg. Corp., New York 23, N. Y.

Tank Fill

Magnetrol, Inc., Chicago 23, Ill.
Plastic Appliance Co., Philadelphia 31, Pa.
Scully Signal Co., Melrose, Mass.

Space Heaters, Oilfired

Circulating, Pot Burner, Forced Circulation

Allen Mfg. Co., Nashville 1, Tenn.
American Gas Machine Co., Albert Lea, Minn.
Barridon Oil Burner Corp., Hartford, Conn.
Coleman Co., Inc., Wichita, Kans.
Delta Htg. Corp., Trenton 8, N. J.
Duo-Therm Div., Lansing 3, Mich.
Florence Stove Co., Gardner, Mass.
Gray & Dudley Co., Nashville, Tenn.
Htg. Eqpt. Mfg. Co., San Francisco, Calif.
International Oil Burner Co., St. Louis 10, Mo.
Knox Stove Works, Inc., Knoxville, Tenn.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Laco Oil Burner Co., Inc., Griswold, Iowa
Little Burner Co., Inc., H. C., San Rafael, Calif.
Lonergan Mfg. Corp., Albion, Mich.
Magic Chef, Inc., St. Louis 10, Mo.
Makomb Steel Prods. Co., Div., Macomb, Ill.
Monarch Range Co., Beaver Dam, Wisc.
Motor Wheel Corp., Lansing 3, Mich.
Perfection Stove Co., Cleveland 4, Ohio
Prentiss Wabers Prods. Co., Wisconsin Rapids, Wisc.
Preway, Inc., Wisconsin Rapids, Wisc.
Queen Stove Works, Inc., Albert Lea, Minn.
Quincy Stove Mfg. Co., The, Quincy, Ill.
Siegler Enamel Range Co., Centralia, Ill.
Silent Sioux Corp., Orange City, Iowa
Therm Gas Generator Co., Inc., Seattle, Wash.
United Stove Co., Ypsilanti, Mich.
Viking Mfg. Corp., Cleveland, Ohio
Washington Stove Works, Everett, Wash.

Circulating, Pot Burner, Gravity Circulation

Allen Mfg. Co., Nashville 1, Tenn.
American Gas Machine Co., Albert Lea, Minn.
Barridon Oil Burner Corp., Hartford, Conn.
Beyer Oil Burner Co., Rosamond, Calif.
Carlton Oil Burner Co., Hartford 3, Conn.
Coleman Co., Inc., Wichita, Kans.
Delta Htg. Corp., Trenton 8, N. J.
Dortch Stove Works, Inc., The, Franklin, Tenn.
Duo-Therm Div., Lansing 3, Mich.
Florence Stove Co., Gardner, Mass.
Gray & Dudley Co., Nashville, Tenn.
Htg. Eqpt. Mfg. Co., San Francisco, Calif.
International Oil Burner Co., St. Louis 10, Mo.
Knox Stove Works, Inc., Knoxville, Tenn.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Laco Oil Burner Co., Inc., Griswold, Iowa
Little Burner Co., Inc., H. C., San Rafael, Calif.
Lonergan Mfg. Corp., Albion, Mich.
Magic Chef, Inc., St. Louis 10, Mo.
Makomb Steel Prods. Co., Div., Macomb, Ill.
Motor Wheel Corp., Lansing 3, Mich.
Oakland Fdry. Co., Belleville, Ill.
Perfection Stove Co., Cleveland 4, Ohio
Prentiss Wabers Prods. Co., Wisconsin Rapids, Wisc.
Queen Stove Works, Inc., Albert Lea, Minn.
Quincy Stove Mfg. Co., The, Quincy, Ill.
Siegler Enamel Range Co., Centralia, Ill.
Silent Sioux Corp., Orange City, Iowa
Spark Stove Co., Inc., Oakland 1, Calif.
Therm Gas Generator Co., Inc., Seattle, Wash.
United Stove Co., Ypsilanti, Mich.
Viking Mfg. Corp., Cleveland, Ohio
Washington Stove Works, Everett, Wash.

Circulating, Shell Burner, Forced Circulation

American Gas Machine Co., Albert Lea, Minn.
Arcweld Mfg. Co., Inc., Seattle 9, Wash.
Barridon Oil Burner Corp., Hartford, Conn.
Carlton Oil Burner Co., Hartford 3, Conn.
Dravo Corp., Pittsburgh 22, Pa.
Florence Stove Co., Gardner, Mass.
Prat-Daniel Corp., So. Norwalk, Conn.
Queen Stove Works, Inc., Albert Lea, Minn.

Circulating, Shell Burner, Gravity Circulation

American Gas Machine Co., Albert Lea, Minn.
Barridon Oil Burner Corp., Hartford, Conn.
Carlton Oil Burner Co., Hartford 3, Conn.
Florence Stove Co., Gardner, Mass.
Jungers Stove & Range Co., Grafton, Wisc.
Motor Wheel Corp., Lansing 3, Mich.
Oakland Fdry. Co., Belleville, Ill.
Queen Stove Works, Inc., Albert Lea, Minn.
Smith's Heating, Inc., Kinston, N. C.

Floor Furnaces

Air Flame, Inc., Waukegan, Ill.
Altherm, Inc., New York 21, N. Y.
American Gas Machine Co., Albert Lea, Minn.
American Ideal-Aire Corp., Westbury, N. Y.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anchor Div., New Albany, Ind.
Beyer Oil Burner Co., Rosamond, Calif.
Bryant Heater Div., Cleveland, Ohio
Chicago Steel Furnace Co., Chicago 17, Ill.
Coleman Co., Inc., Wichita, Kan.
Conn. State Furnace Co., Inc., Bridgeport, Conn.
Crane Co., Chicago 40, Ill.
Delta Htg. Corp., Trenton 8, N. J.
Domestic Mfg. Co., Seattle, Wash.
Draco Furnace Co., Inc., Charlotte, N. C.
Electro-Watt Industries, Inc., Salem, Ore.
Evans Prods., Plymouth, Mich.
Florence Stove Co., Gardner, Mass.
Gillen Co., J. L., Detroit 28, Mich.
Holly Mfg. Co., Pasadena, Calif.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Kleer-Kleen Mfg. Co., Oakland 3, Calif.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Lawson Mfg. Co., Pittsburgh 8, Pa.
Lennox Furnace Co., Marshalltown, Iowa
Little Burner Co., Inc., H. C., San Rafael, Calif.
Magic Chef, Inc., St. Louis 10, Mo.
Meyer Furnace Co., Peoria 2, Ill.
Mission Appliance Corp., Hawthorne, Calif.
Montag Stove & Furnace Works, Portland 17 ,Ore.
National Heater Co., Inc., St. Paul 4, Minn.
Northwest Metal Products, Inc., Seattle, Wash.
O'Halloran Industries, Detroit 4, Mich.
Arthur A. Olson & Co., Canfield, Ohio
Oran Co., Columbus, Ohio
Pennsylvania Furnace & Iron Co., Warren, Pa.
Perfection Stove Co., Cleveland 4, Ohio
Prentiss Wabers Prods. Co., Wisconsin Rapids, Wisc.
Preway, Inc., Wisconsin Rapids, Wisc.
Queen Stove Works, Inc., Albert Lea, Minn.
Quiet Automatic Burner Corp., Newark 4, N. J.
Reliance Prods. Corp., Portland 14, Ore.
Rossoe Mfg. Co., Inc., Seattle, Wash.
Siebring Mfg. Co., George, Iowa
Surface Combustion Corp., Toledo, Ohio
Therm Gas Generator Co., Inc., Seattle, Wash.
Thermo-Prods., Inc., No. Judson, Ind.
U.S. Machine Div., Lebanon, Ind.
Volcano Burner Corp., New York 61, N. Y.
Wayne Home Eqpt. Co., Inc., Ft. Wayne 4, Ind.

Radiant, Pot Burner

American Gas Machine Co., Albert Lea, Minn.
Barridon Oil Burner Corp., Hartford, Conn.
Beyer Oil Burner Co., Rosamond, Calif.
Carlton Oil Burner Co., Hartford 3, Conn.
Coleman Co., Inc., Wichita, Kan.
Duo-Therm Div., Lansing 3, Mich.
Evans Prods., Plymouth, Mich.
Florence Stove Co., Gardner, Mass.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Laco Oil Burner Co., Inc., Griswold, Iowa
Magic Chef, Inc., St. Louis 10, Mo.
Makomb Steel Prods. Co. Div., Macomb, Ill.
Motor Wheel Corp., Lansing 3, Mich.
Perfection Stove Co., Cleveland 4, Ohio
Prentiss Wabers Prods. Co., Wisconsin Rapids, Wisc.
Queen Stove Works, Inc., Albert Lea, Minn.
Quincy Stove Mfg. Co., The, Quincy, Ill.
Silent Sioux Corp., Orange City, Iowa
Therm Gas Generator Co., Inc., Seattle, Wash.
United Stove Co., Ypsilanti, Mich.

Radiant, Shell Burner

American Gas Machine Co., Albert Lea, Minn.
Barridon Oil Burner Corp., Hartford, Conn.
Carlton Oil Burner Co., Hartford 3, Conn.
Florence Stove Co., Gardner, Mass.
Motor Wheel Corp., Lansing 3, Mich.
Queen Stove Works, Inc., Albert Lea, Minn.

Wall Furnaces

Altherm, Inc., New York 21, N. Y.
American Gas Machine Co., Albert Lea, Minn.
Beyer Oil Burner Co., Rosamond, Calif.
Bryant Heater Div., Cleveland, Ohio
Coleman Co., Inc., Wichita, Kan.
Crane Co., Chicago 40, Ill.
Delta Htg. Corp., Trenton 8, N. J.
Domestic Mfg. Co., Seattle, Wash.
Electro-Watt Industries, Inc., Salem, Ore.
Electro-Watt, Inc., Seattle 1, Wash.
Evans Prods., Plymouth, Mich.
J. L. Gillen Co., Detroit, Mich.
Holly Mfg. Co., Pasadena, Calif.
Iron Fireman Mfg. Co., Cleveland 11, Ohio
Kleer-Kleen Mfg. Co., Hayward, Calif.
Kresky Mfg. Co., Inc., Petaluma, Calif.
Lawson Mfg. Co., Pittsburgh 18, Pa.
Lennox Furnace Co., Marshalltown, Iowa
Little Burner Co., Inc., H. C., San Rafael, Calif.
Magic Chef, Inc., St. Louis 10, Mo.
Norman Prods. Co., Columbus, Ohio
Northwest Metal Prods., Inc., Seattle, Wash.
Olson & Co., Arthur A., Canfield, Ohio
Quincy Stove Mfg. Co., The, Quincy, Ill.
Reliance Prods. Corp., Portland 14, Ore.
Siebring Mfg. Co., George, Iowa
Silent Sioux Corp., Orange City, Iowa
Therm Gas Generator Co., Inc., Seattle, Wash.
U.S. Machine Div., Lebanon, Ind.

Switches

Manual

Burke Eng. Co., Los Angeles 7, Calif.
Cutler-Hammer, Inc., Milwaukee 1, Wisc.
General Electric Co., Schenectady 5, N. Y.
Master Appliance Co., Racine, Wisc.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Square D Co., Milwaukee 12, Wisc.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.

Overload

Burke Eng. Co., Los Angeles 7, Calif.
Cutler-Hammer, Inc., Milwaukee 1, Wisc.
General Electric Co., Schenectady 5, N. Y.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Spencer Thermostat Div., Attleboro, Mass.
Square D Co., Milwaukee 12, Wisc.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.

Pressure or Vacuum Actuated

Barksdale Valves, Los Angeles 11, Calif.
General Controls Co., Glendale 1, Calif.

Temperature

Automatic Devices Co., Inc., Western Springs, Ill.
Barber-Colman Co., Rockford, Ill.
Cam-Stat Div., Los Angeles 64, Calif.
Cooper Co., Clark, Palmyra, N. J.
Cutler-Hammer, Inc., Milwaukee 1, Wisc.
Defender Instrument & Regulator Co., St. Louis, Mo.
Detroit Controls Corp., Detroit 8, Mich.
General Electric Co., Schenectady 5, N. Y.
McClarty Systems, Battle Creek, Mich.
Mercoid Corp., The, Chicago 41, Ill.

Miller-Harris Instrument Co., Milwaukee, Wisc.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Morse-Smith-Morse Co., Watertown, Mass.
Penn Controls, Inc., Goshen, Ind.
Spencer Thermostat Div., Attleboro, Mass.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.
White-Rodgers Electric Co., St. Louis 6, Mo.

Tanks

Basement, Steel Oil Storage

Acme Htg. Div., W. Hartford 10, Conn.
American Steel Works, Kansas City, Mo.
Arcweld Mfg. Co., Inc., Seattle 99, Wash.
Bard Mfg. Co., Bryan, Ohio
Biggs Boiler Works Co., Akron, Ohio
Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Butler Mfg. Co., Kansas City 26, Mo.
D. & C. Equipment Co., Hartford, Conn.
Eaton Metal Prods. Corp., Omaha 2, Neb.
Economic Steel Pack Co., Everett, Mass.
Electro-Watt Industries, Inc., Salem, Ore.
Fire Proven Prods., Baltimore, Md.
Gary Steel Prods., Gary, Ind.
Gary Carolina Co., Rocky Mount, N. C.
Gibraltar Corp. of America, Inc., Brooklyn, N. Y.
Harlan & Hollingsworth Tank Corp., Philadelphia 2, Pa.
Henry Furnace Co., Medina, Ohio
Kaustine Co., Inc., Perry, N. Y.
Kennedy Tank & Mfg. Co., Inc., Indianapolis, Ind.
Lynch Co., Inc., The, Portland 11, Ore.
Michigan Tank & Heater Corp., Dearborn, Mich.
Meldon Industries, Inc., Detroit 22, Mich.
Morrison Bros. Co., Dubuque, Iowa
Montag Stove & Furnace Works, Portland 17, Ore.
Norwalk Tank Co., So. Norwalk, Conn.
Novelty Steam Boiler Works, Inc., Baltimore 30, Md.
Olsen Mfg. Co., The C. A., Elyria, Ohio
Pennsylvania Furnace & Iron Co., Warren, Pa.
Philadelphia Valve Co., Philadelphia 34, Pa.
Price Fireplace Heater & Tank Div., Buffalo, N. Y.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Remco, Inc., Baltimore 2, Md.
Salisbury Tank & Steel Co., Newburyport, Mass.
Sandberg Mfg. Co., Portland 10, Ore.
Shadyside Fdry., Martins Ferry, Ohio
Southern Tank & Mfg., Inc., Owensboro, Ky.
Steel Tank & Sheet Metal Fabricators, Inc., Chicago 9, Ill.
Trageser Copper Works, Inc., Maspeth, L. I., N. Y.
Waterfilm Boilers, Inc., Jersey City 7, N. J.
Wood Co., John, Conshohocken, Pa.
Zambelli Boiler Works, Philadelphia 25, Pa.

Bulk Plant

Acme Htg. Div., W. Hartford 10, Conn.
Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
American Steel Works, Kansas City, Mo.
Biggs Boiler Works Co., Akron, Ohio
Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Bowser, Inc., Ft. Wayne, Ind.
Butler Mfg. Co., Kansas City 26, Mo.
Columbian Steel Tank Co., Kansas City 1, Mo.
Eastern Steel Tank Corp., Flushing, N. Y.
Eaton Metal Prods. Corp., Omaha 2, Neb.
Fisher Tank Co., Chester, Pa.
Gary Carolina Co., Rocky Mount, N. C.
Graver Tank & Mfg. Co., Inc., E. Chicago, Ind.
Hammond Iron Works, New York, N. Y.
Kaustine Co., Inc., Perry, N. Y.
Kennedy Tank & Mfg. Co., Inc., Indianapolis, Ind.
Morrison Bros. Co., Dubuque, Iowa
Norwalk Tank Co., So. Norwalk, Conn.
Pennsylvania Furnace & Iron Co., Warren, Pa.
Philadelphia Valve Co., Philadelphia 34, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Salisbury Tank & Steel Co., Newburyport, Mass.
Sharpsville Steel Fabricators, Inc., Sharpsville, Pa.
Wm. Bros Boiler & Mfg. Co., Minneapolis, Minn.
Zambelli Boiler Works, Philadelphia 25, Pa.

Expansion

Acme Htg. Div., W. Hartford 10, Conn.
American District Steam Co., Inc., N. Tonawanda, N. Y.
American Steel Works, Kansas City, Mo.
Baseline Mfg. Corp., Minneapolis 23, Minn.
Bell & Gossett Co., Morton Grove, Ill.
Biggs Boiler Works Co., Akron, Ohio
Columbian Steel Tank Co., Kansas City 1, Mo.
Eastern Steel Tank Corp., Flushing, N. Y.
Fire Proven Prods., Baltimore 18, Md.
Gabriel Boiler & Fabrication Co., Portland 9, Ore.
Gibraltar Corp. of America, Inc., Brooklyn, N. Y.
Hammond Iron Works, New York, N. Y.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
Kennedy Tank & Mfg. Co., Inc., Indianapolis, Ind.
Michigan Tank & Heater Corp., Dearborn, Mich.
National Steel Construction Co., Seattle 8, Wash.
Novelty Steam Boiler Works, Inc., Baltimore 30, Md.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Salisbury Tank & Steel Co., Newburyport, Mass.
Sharpsville Steel Fabricators, Inc., Sharpsville, Pa.
Thrush & Co., H. A., Peru, Ind.
Triplex Heating Specialty Co., Inc., Peru, Ind.
Waterfilm Boilers, Inc., Jersey City 7, N. J.
Wm. Bros Boiler & Mfg. Co., Minneapolis, Minn.
Wood Co., John, Conshohocken, Pa.

Hot Water Storage

Acme Htg. Div., W. Hartford 10, Conn.
American District Steam Co., Inc., N. Tonawanda, N. Y.
American Steel Works, Kansas City, Mo.
Bell & Gossett Co., Morton Grove, Ill.
Biggs Boiler Works Co., Akron, Ohio
Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Clayton & Lambert Mfg. Co., Louisville, Ky.
Columbian Steel Tank Co., Kansas City 1, Mo.
Davis Eng. Corp., New York 53, N. Y.
Eastern Steel Tank Corp., Flushing, N. Y.
Eaton Metal Prods. Corp., Omaha 2, Neb.
Gabriel Boiler & Fabrication Co., Portland 9, Ore.
General Fittings Co., Providence 5, R. I.
Hapman-Dutton Co., Kalamazoo, Mich.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
Kennedy Tank & Mfg. Co., Inc., Indianapolis, Ind.
Manning & Lewis Eng. Co., Newark, N. J.
Michigan Tank & Heater Corp., Dearborn, Mich.
Morrison Bros. Co., Dubuque, Iowa
Mund Boilers, Inc., Los Angeles 63, Calif.
National Steel Construction Co., Seattle 8, Wash.
Norse Boiler Co., Inc., New Market, N. J.
Novelty Steam Boiler Works, Inc., Baltimore 30, Md.
Patterson-Kelley Co., Inc., The, E. Stroudsburg, Pa.
Philadelphia Valve Co., Philadelphia 34, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Sharpsville Steel Fabricators, Inc., Sharpsville, Pa.
Steel Tank & Sheet Metal Fabricators, Inc., Chicago 9, Ill.
Thermo-Prods., Inc., No. Judson, Ind.
Trageser Copper Works, Inc., Maspeth, L. I., N. Y.
Waterfilm Boilers, Inc., Jersey City 7, N. J.
Wm. Bros Boiler & Mfg. Co., Minneapolis, Minn.
Wood Co., John, Conshohocken, Pa.
Yula Water Heaters, Inc., New York 63, N. Y.

Range Burner, Oil

Barridon Oil Burner Corp., Hartford, Conn.
Columbian Steel Tank Co., Kansas City 1, Mo.
Novelty Steam Boiler Works, Inc., Baltimore 30, Md.
Philadelphia Valve Co., Philadelphia 34, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Salisbury Tank & Steel Co., Newburyport, Mass.

Repair Kits

Tankit Co., Newark, N. J.

Space Heater, Oil

Barridon Oil Burner Corp., Hartford, Conn.
Columbian Steel Tank Co., Kansas City 1, Mo.
Gary Carolina Co., Rocky Mount, N. C.
Little Burner Co., H. C., San Rafael, Calif.
Novelty Steam Boiler Works, Inc., Baltimore 30, Md.
Salisbury Tank & Steel Co., Newburyport, Mass.
Silent Sioux Corp., Orange City, Iowa

Tank Cleaning Equipment

National Visa-Clean Co., Baltimore, Md.

Truck

Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
American Steel Works, Kansas City, Mo.
Biggs Boiler Works Co., Akron, Ohio

Billings, Inc., Bronx 59, N. Y.
Bowser, Inc., Ft. Wayne, Ind.
Butler Mfg. Co., Kansas City 26, Mo.
Columbian Steel Tank Co., Kansas City 1, Mo.
D. & C. Eqpt. Co., Hartford 1, Conn.
Decker Bros., Hawthorne, N. J.
Eaton Metal Prods. Corp., Omaha 2, Neb.
Gary Carolina Co., Rocky Mount, N. C.
Heil Co., The, Milwaukee 1, Wisc.
Kaustine Co., Inc., Perry, N. Y.
Kennedy Tank & Mfg. Co., Inc., Indianapolis, Ind.
Morrison Bros. Co., Dubuque, Iowa
Pennsylvania Furnace & Iron Co., Warren, Pa.
Philadelphia Valve Co., Philadelphia 34, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Sharpsville Steel Fabricators, Inc., Sharpsville, Pa.
Southern Tank & Mfg., Inc., Owensboro, Ky.
Trailmobile Co., Cincinnati, Ohio
Triangle Tank Div., Inc., Brooklyn 22, N. Y.

Underground, Concrete, Oil Storage

Conspheres Co., New Canaan, Conn.

Underground, Steel, Oil Storage

Acme Htg. Div., W. Hartford 10, Conn.
Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
American Steel Works, Kansas City, Mo.
Arcweld Mfg. Co., Inc., Seattle 99, Wash.
Biggs Boiler Works Co., Akron, Ohio
Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Burtchaell Htng. Co., Portland 2, Ore.
Butler Mfg. Co., Kansas City 26, Mo.
Columbian Steel Tank Co., Kansas City 1, Mo.
D. & C. Eqpt. Co., Hartford, Conn.
Eaton Metal Prods. Corp., Omaha 2, Neb.
Eastern Steel Tank Corp., Flushing, N. Y.
Electro-Watt Industries, Inc., Salem, Ore.
Gary Carolina Co., Rocky Mount, N .C.
Gabriel Boiler & Fabrication Co., Portland 9, Ore.
Gary Steel Prods. Co., Gary, Ind.
Gibraltar Corp. of America, Inc., Brooklyn, N. Y.
Graver Tank & Mfg. Co., Inc., E. Chicago, Ind.
Hammond Iron Works, New York, N. Y.
Harlan & Hollingsworth Tank Corp., Philadelphia, Pa.
Kaustine Co., Inc., Perry, N. Y.
Kennedy Tank & Mfg. Co., Inc., Indianapolis, Ind.
Lynch Co., Inc., The, Portland 11, Ore.
Meldon Industries, Inc., Detroit 23, Mich.
Michigan Tank & Heater Corp., Dearborn, Mich.
Montag Stove & Furnace Works, Portland 17, Ore.
Morrison Bros. Co., Dubuque, Iowa
Norse Boiler Co., Inc., New Market, N. J.
Norwalk Tank Co., So. Norwalk, Conn.
Novelty Steam Boiler Works, Baltimore 30, Md.
Pennsylvania Furnace & Iron Co., Warren, Pa.
Philadelphia Valve Co., Philadelphia 34, Pa.
Price Fireplace Heater & Tank Div., Buffalo, N. Y.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Remco, Inc., Baltimore 2, Md.
Rossoe Mfg. Co., Inc., Seattle, Wash.
Salisbury Tank & Steel Co., Newburyport, Mass.
Sandberg Mfg. Co., Portland 10, Ore.
Shadyside Fdry., Martins Ferry, Ohio
Sharpsville Steel Fabricators, Inc., Sharpsville, Pa.
Southern Tank & Mfg., Inc., Owensboro, Ky.
Trageser Copper Works, Inc., Maspeth, L. I., N. Y.
Waterfilm Boilers, Inc., Jersey City 7, N. J.
Wm. Bros Boiler & Mfg. Co., Minneapolis, Minn.
Wood Co., John, Conshohocken, Pa.
Zambelli Boiler Works, Philadelphia 25, Pa.

Water Heating

American District Steam Co., Inc., N. Tonawanda, N. Y.
American Steel Works, Kansas City, Mo.
Bell & Gossett Co., Morton Grove, Ill.
Eastern Steel Tank Corp., Flushing, N. Y.
Eaton Metal Prods. Corp., Omaha 2, Neb.
Gabriel Boiler & Fabrication Co., Portland 9, Ore.
Hapman-Dutton Co., Kalamazoo, Mich.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
Kennedy Tank & Mfg. Co., Inc., Indianapolis, Ind.
Michigan Tank & Heater Corp., Dearborn, Mich.
National Steel Construction Co., Seattle 8, Wash.
Norse Boiler Co., Inc., New Market, N. J.
Novelty Steam Boiler Works, Baltimore 30, Md.
Patterson-Kelley Co., Inc., The, E. Stroudsburg, Pa.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Sharpsville Steel Fabricators, Inc., Sharpsville, Pa.
Waterfilm Boilers, Inc., Jersey City 7, N. J.
Yula Water Heaters, Inc., New York 63, N. Y.

Tank Stands, Racks

Fueloil Storage, Basement

Acme Htg. Div., W. Hartford 10, Conn.
American Steel Works, Kansas City, Mo.
Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Brown Oil Burning Eqpt. Co., Cambridge 39, Mass.
Butler Mfg. Co., Kansas City 26, Mo.
Eaton Metal Prods. Corp., Omaha 2, Neb.
Economic Steel Pack Co., Everett, Mass.
McGillis Service Eng., Brockton, Mass.
Philadelphia Valve Co., Philadelphia 34, Pa.
Southern Tank & Mfg., Inc., Owensboro, Ky.

Hot Water Storage

American Steel Works, Kansas City, Mo.
Eastern Steel Tank Corp., Flushing, N. Y.
Hapman-Dutton Co., Kalamazoo, Mich.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
Michigan Tank & Heater Corp., Dearborn, Mich.
Waterfilm Boilers, Inc., Jersey City 7, N. J.
Wm. Bros Boiler & Mfg. Co., Minneapolis 14, Minn.

Tools, Pipe

Air Hammer

Brown-Appton Co., New York 22, N. Y.

Benders

Carlton Supply Co., Hartford 1, Conn.
Greenlee Tool Co., Rockford, Ill.
Holsclaw Bros., Inc., Evansville, Ind.
Reliance Tubular Prod. Co., Cleveland 8, Ohio
Skinner Co., M. B., South Bend, Ind.
Tal Bender, Inc., Milwaukee 2, Wisc.

Copper Tubing Tools, Bend

Carlton Supply Co., Hartford 1, Conn.
Chase Brass & Copper Co., Inc., Waterbury 20, Conn.
Greenlee Tool Co., Rockford, Ill.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
Leggitt Co., S. H., Marshall, Mich.
Madden Brass Prod. Co., Chicago 19, Ill.
Martin Tube Benders, W. H., Owensboro, Ky.
Reliance Tubular Prod. Co., Cleveland 8, Ohio
Span Brass Mfg. Co., Inc., Otsego, Mich.
Tal Bender, Inc., Milwaukee 2 ,Wisc.
Universal Brass Corp., Arlington, N. J.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio

Copper Tubing Tools, Cut

Armstrong Bros. Tool Co., Chicago 30, Ill.
Carlton Supply Co., Hartford 1, Conn.
Chase Brass & Copper Co., Waterbury 20, Conn.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
Leggitt Co., S. H., Marshall, Mich.
Madden Brass Prod. Co., Chicago 19, Ill.
Penn Brass & Copper Co., Erie, Pa.
Ridge Tool Co., The, Elyria, Ohio
Span Brass Mfg. Co., Inc., Otsego, Mich.
Universal Brass Corp., Arlington, N. J.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio

Copper Tubing Tools, Flare

Armstrong Bros. Tool Co., Chicago 30, Ill.
Carlton Supply Co., Hartford 1, Conn.
Chase Brass & Copper Co., Waterbury 20, Conn.
Couplings Co., Chicago 16, Ill.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
Leggitt Co., S. H., Marshall, Mich.
Madden Brass Prod. Co., Chicago 19, Ill.
Penn Brass & Copper Co., Erie, Pa.
Reading Brass Co., Hillsdale, Mich.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Universal Brass Corp., Arlington, N. J.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio

Copper Tubing Tools, Ream

Armstrong Bros. Tool Co., Chicago 30, Ill.
Chase Brass & Copper Co., Inc., Waterbury, Conn.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
Madden Brass Prod. Co. ,Chicago 10, Ill.
Wayne Brass Co., Inc., Ft. Wayne, Ind.

Cutters

Armstrong Bros. Tool Co., Chicago 30, Ill.
Ridge Tool Co., The, Elyria, Ohio

Masonry Drills

Carboloy Dept., Detroit 32, Mich.
New England Carbide Tool Co., Inc., Cambridge 39, Mass.

Power Stands

Ridge Tool Co., The, Elyria, Ohio

Reamers

Armstrong Bros. Tool Co., Chicago 30, Ill.
Ridge Tool Co., The, Elyria, Ohio

Stocks & Dies

Armstrong Bros. Tool Co., Chicago 30, Ill.
Ridge Tool Co., The, Elyria, Ohio

Threading Machine

Armstrong Bros. Tool Co., Chicago 30, Ill.
Ridge Tool Co., The, Elyria, Ohio

Vises & Stands

Armstrong Bros. Tool Co., Chicago 30, Ill.
Ridge Tool Co., The, Elyria, Ohio

Wrenches

Armstrong Bros. Tool Co., Chicago 30, Ill.
Ridge Tool Co., The, Elyria, Ohio
Tubing Appliance Co., Inc., Los Angeles 45, Calif.

Tools: Portable Electric

Drills

Milwaukee Electrical Tool Corp., Milwaukee 8, Wisc.

Electric Hammer

Syntron Co., Homer City, Pa.
Tri-Saw Corp., St. Louis 17, Mo.

Saws

Krieg, Inc., Victor J., New York 12, N. Y.
Milwaukee Electrical Tool Corp., Milwaukee 8, Wisc.
R.C.S. Tool Sales Co., Joliet, Ill.

Tools, Power-actuated

Ramset Div., Cleveland 11, Ohio
Remington Arms Co., Bridgeport, Conn.

Tools, Sheet Metal

Band Saws

Bett-Marr Mfg. Co., Hopkins, Minn.

Brakes

Falsington Mfg. Co., Falsington, Pa.
Hallmor, Inc., Bridgeville, Pa.
Stueck, Inc., W. Whitney, Old Saybrook, Conn.

Hand Shears

Falsington Mfg. Co., Falsington, Pa.
Krieg, Inc., V. J., New York, N. Y.
Mercury Supply Co., Elmhurst, Ill.
Niagara Machine & Tool Works, Buffalo 11, N. Y.
Whitney Mfg. Co., W. A., Rockford, Ill.
Wiss & Sons Co., J., Newark 7, N. J.

Lockformers

Falsington Mfg. Co., Falsington, Pa.
Lockformer Co., The, Chicago 50, Ill.

Portable Brakes

Hallmor, Inc., Bridgeville, Pa.
Niagara Machine & Tool Works, Buffalo 11, N. Y.
Stueck, Inc., W. Whitney, Old Saybrook, Conn.
Webb Machine & Tool Co., Imperial, Pa.

Portable Shears

Beverly Shear Mfg. Co., Chicago 43, Ill.
Falsington Mfg. Co., Falsington, Pa.
Kraus Mfg. Co., C. E., Louisville 2, Ky.
Krieg, Inc., V. J., New York, N. Y.
Mercury Supply Co., Elmhurst, Ill.
Whitney Mgf. Co., W. A., Rockford, Ill.

Power Hammer

American Pneumatic Tool Co., New York 22, N. Y.

Power Shears

Krieg, Inc., V. J., New York, N. Y.
Libert Machine Co., Green Bay, Wisc.
Niagara Machine & Tool Works, Buffalo 11, N. Y.

Punches

Falsington Mfg. Co., Falsington, Pa.
Niagara Machine & Tool Works, Buffalo 11, N. Y.
Whitney Mgf. Co., W. A., Rockford, Ill.
Wysong & Miles Co., Greensboro, N. C.

Transformers

Control

Detroit Controls Corp., Detroit 8, Mich.
Dongan Electric Mfg. Co., Detroit, Mich.
Forest Electric Co., The, Forest Park, Ill.
General Controls Co., Glendale 1, Calif.
General Electric Co., Schenectady 5, N. Y.
Hold-Tite Valve Mfg. Co., New York 22, N. Y.
Jefferson Electric Co., Bellwood, Ill.
Magnex Corp., Jamaica 18, N. Y.
Square D Co., Milwaukee 12, Wisc.
Union Spring & Mfg. Co., Jersey City, N. J.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.

Ignition

Ace Transformer Co., Inc., New York 16, N. Y.
Acme Electric Corp., Cuba, N. Y.
Aldrich Co., Wyoming, Ill.
Berkshire Transformer Corp., New Milford, Conn.
Dongan Electric Mfg. Co., Detroit, Mich.
Forest Electric Co., The, Forest Park, Ill.
General Controls Co., Glendale 1, Calif.
General Electric Co., Ft Wayne 2, Ind.
General Electric Co., Schenectady 5, N. Y.
Harvey, Inc., Sid, Valley Stream, N. Y.
Hold-Tite Valve Mfg. Co., New York 22, N. Y.
HomEase Prods. Div., Inc., Paterson, N. J.
Jefferson Electric Co., Bellwood, Ill.
Magnex Corp., Jamaica 18, N. Y.
Penn Transformer Corp., Bellefonte, Pa.
Silent Flame Mfg. Co., Inc., New York 72, N. Y.
Union Electric & Mfg. Co., Jersey City, N. J.
Webster Electric Co., Racine, Wisc.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.

Traps

Boiler Return

Acker Organization, Inc., W. M., Cleveland 9, Ohio

Lifting

Acker Organization, Inc., W. M., Cleveland 9, Ohio

Non-return

Acker Organization, Inc., W. M., Cleveland 9, Ohio

Steam

Anderson Co., V. D., Cleveland 2, Ohio
Armstrong Machine Works, Three Rivers, Mich.
Barnes & Jones, Inc., Boston 30, Mass.
Clark Mfg. Co., Cleveland 14, Ohio
Dunham Co., C. A., Chicago, Ill.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.

Truck Bodies

Service & Installation

Karyall Body, Inc., Cleveland 9, Ohio
Stahl Metal Prods., Inc., Cleveland 10, Ohio

Tubing

Aluminum

American Brass Co., Waterbury 20, Conn.
Leggitt Co., S. H., Marshall, Mich.
Linderme Tube Co., The, Cleveland 17, Ohio
Penn Brass & Copper Co., Erie, Pa.
Reliance Tubular Prods. Co., Cleveland 8, Ohio
Revere Copper & Brass, Inc., New York 17, N. Y.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Universal Brass Corp., Arlington, N. J.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Wolverine Tube Div., Detroit 26, Mich.

Benders

(See listing on page 32d under Tools, Pipe, Copper Tubing, Bend, Brass)

Brass

American Brass Co., Waterbury 20, Conn.
Chase Brass & Copper Co., Waterbury 20, Conn.
Grinnell Co., Inc., Providence 1, R. I.
Reading Tube Corp., New York 1, N. Y.
Reliance Tubular Prods. Co., Cleveland 8, Ohio
Revere Copper & Brass, Inc., New York 17, N. Y.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Wolverine Tube Div., Detroit 26, Mich.

Coils

Carlton Supply Co., Hartford 1, Conn.
Madden Brass Prod. Co., Chicago 10, Ill.
Reliance Tubular Prods. Co., Cleveland 8, Ohio
Rome-Turney Rad. Co., Rome, N. Y.
Taco Heaters, Inc., Providence, R. I.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Yula Water Heaters, Inc., New York 63, N. Y.

Copper

American Brass Co., Waterbury 20, Conn.
Chase Brass & Copper Co., Waterbury 20, Conn.
Couplings Co., Chicago 16, Ill.
Grinnell Co., Inc., Providence 1, R. I.
H.&H. Tube & Mfg. Co., Detroit 17, Mich.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
Leggitt Co., S. H., Marshall, Mich.
Lincoln Brass Works, Inc., Detroit 16, Mich.
Linderme Tube Co., The, Cleveland 17, Ohio
Madden Brass Prod. Co., Chicago 10, Ill.
Penn Brass & Copper Co., Erie, Pa.
Reading Tube Corp., New York 1, N. Y.
Reliance Tubular Prods. Co., Cleveland 8, Ohio
Revere Copper & Brass, Inc., New York 17, N. Y.
Rome-Turney Rad. Co., Rome, N. Y.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Universal Brass Corp., Arlington, N. J.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio
Wolverine Tube Div., Detroit 26, Mich.

Hangers

American Tube Products, Inc., Natick, R. I.
Carlton Supply Co., Hartford 1, Conn.
General Fittings Co., Providence, R. I.
Grinnell Co., Inc., Providence 1, R. I.
Leggitt Co., S. H., Marshall, Mich.
Pate Co., The, Darby, Pa.
Universal Brass Corp., Arlington, N. J.

Metal Flexible

Packless Metal Hose, Inc., New Rochelle, N .Y.

Plastic

Flexible Tubing Corp., Guilford, Conn.
Pyramid Plastics, Inc., Chicago 7, Ill.
U.S. Rubber Co., New York 20, N. Y.

Steel

Avon Tube Div., Rochester, Mich.

Unit Heaters

Direct Oilfired

Air Conditioning Eng. Co., Cambridge 41, Mass.
Airtherm Mfg. Co., St. Louis 10, Mo.
Altherm, Inc., New York 21, N. Y.
American Crop Drying Eqpt. Co., Crystal Lake, Ill.
American Fdry. & Furnace Co., Bloomington, Ill.
Beck Eng. Combustion Ko., St. Louis 6, Mo.
Campbell Co., E. K., Kansas City, Mo.
Chicago Steel Furnace Co., Chicago 17, Ill.
Chimney Furnace-Western, Seattle 44, Wash.
Dravo Corp., Pittsbugh 22, Pa.
Drying Systems, Inc., Chicago 40, Ill.
Fageol Heat Machine Co., Detroit 11, Mich.
Gilbert & Barker Mfg. Co., W. Springfield, Mass.
Lee Corp., Wilmington, Del.
Mueller Furnace Co., L. J., Milwaukee 15, Wisc.
National Heater Co., Inc., St. Paul 4, Minn.
Norwalk Air Conditioning Corp., The, So. Norwalk, Conn.
Olson & Co., Arthur A., Canfield, Ohio
Over Head Heaters, Inc., Detroit 26, Mich.
Peabody Eng. Corp., New York 36, N. Y.
Prat-Daniel Corp., So. Norwalk, Conn.
Therm-O-Bloc Div., So. Norwalk, Conn.
Tjernlund Mfg. Co., St. Paul 14, Minn.

Hot Water

Airtherm Mfg. Co., St. Louis 10, Mo.
American Air Filter Co., Inc., Louisville, Ky.
American Blower Corp., Dearborn, Mich.
Bishop & Babcock Mfg. Co., Cleveland 14, Ohio
Brown Prods. Co., Forest Hills, N. Y.
Buffalo Forge Co., Inc., Buffalo, N. Y.
Burnham Corp., Irvington, N. Y.
Carrier Corp., Syracuse, N. Y.
Clarage Fan Co., Kalamazoo, Mich.
Dunham Co., C. A., Chicago, Ill.
Fedders-Quigan Corp., Buffalo, N. Y.
Grinnell Co., Inc., Providence 1, R. I.
Hastings Air Conditioning Co., Inc., Hastings, Nebr.
Martin Fan & Blower Co., Inc., Chicago 50, Ill.
Modine Mfg. Co., Racine, Wisc.
National Rad. Co., The, Johnstown, Pa.
Nesbitt, Inc., John J., Philadelphia 36, Pa.
Patterson-Kelley Co., Inc., The, E. Stroudsburg, Pa.
Rittling Corp., Buffalo 3, N. Y.
Skinner Htg. & Ventilating Co., Inc., St. Louis 6, Mo.
Sturtevant Div., Boston, Mass.
Trane Co., The, LaCrosse, Wisc.
Union Asbestos & Rubber Co., Chicago, Ill.
U.S. Air Conditioning Corp., Minneapolis 14, Minn.
U.S. Rad. Corp., Detroit 26, Mich.
Warren Webster & Co., Camden 5, N. J.
Sturtevant Div., Boston 36, Mass.
Wing Mfg. Co., L. J., Linden, N. J.
Young Rad. Co., Racine, Wisc.

Steam

Airtherm Mfg. Co., St. Louis 10, Mo.
American Air Filter Co., Inc., Louisville, Ky.
American Blower Corp., Dearborn, Mich.
Bishop & Babcock Mfg. Co., Cleveland 14, Ohio
Brown Prods. Co., Forest Hills, N. Y.
Buffalo Forge Co., Inc., Buffalo, N. Y.
Burnham Corp., Irvington, N. Y.
Carrier Corp., Syracuse, N. Y.
Clarage Fan Co., Kalamazoo, Mich.
Dunham Co., C. A., Chicago, Ill.
Fedders-Quigan Corp., Buffalo, N. Y.
Grinnell Co., Inc., Providence 1, R. I.
Hastings Air Conditioning Co., Inc., Hastings, Nebr.
Kisco Boiler & Eng. Co., St. Louis 4, Mo.
Martin Fan & Blower Co., Inc., Chicago 50, Ill.
Modine Mfg. Co., Racine, Wisc.
National Rad. Co., The, Johnstown, Pa.
Nesbitt, Inc., John J., Philadelphia 36, Pa.
Patterson-Kelley Co., Inc., The, E. Stroudsburg, Pa.
Rittling Corp., Buffalo 3, N. Y.
Skinner Htg. & Ventilating Co., Inc., St. Louis 6, Mo.
Sturtevant Div., Boston, Mass.
Trane Co., The, LaCrosse, Wisc.
Union Asbestos & Rubber Co., Chicago, Ill.
U.S. Air Conditioning Corp., Minneapolis 14, Minn.
U.S. Rad. Corp., Detroit 26, Mich.
Warren Webster & Co., Camden 5, N. J.

Sturtevant Div., Boston 36, Mass.
Wing Mfg. Co., L. J., Linden, N. J.
Young Rad. Co., Racine, Wisc.

Vacuum Cleaners

Boilers & Furnaces

Baker Furnace & Cleaner Mfg. Co., Toledo 6, Ohio
Breuer Electric Mfg. Co., Chicago 49, Ill.
Doyle Vacuum Cleaner Co., Grand Rapids, Mich.
Empire Chemical Prod. Co., Newark, N. J.
Hasko Utilities Co., New York, N. Y.
Harvey, Inc., Sid, Valley Stream, N. Y.
Kent Co., Inc., The, Rome, N. Y.
Master-Craft Supply Co., Inc., Haverstraw, N. Y.
National Super Service Co., Inc., Toledo 2, Ohio
Premier Co., St. Paul, Minn.
Pullman Vacuum Cleaner Corp., Boston 11, Mass.
Unique Art Mfg. Co., Inc., Newark, N. J.

Cleaning Brushes

Schaefer Brush Mfg. Co., Milwaukee 4, Wisc.

Hose

Admiral Rubber Corp., Brooklyn 32, N. Y.
Hasko Utilities Co., New York, N. Y.

Tools & Accessories

Baker Furnace & Cleaner Mfg. Co., Toledo 6, Ohio
Breuer Electric Mfg. Co., Chicago 49, Ill.
Doyle Vacuum Cleaner Co., Grand Rapids, Mich.
Empire Chemical Prod. Co., Newark, N. J.
Hasko Utilities Co., New York, N. Y.
Kent Co., Inc., The, Rome, N. Y.
Master-Craft Supply Co., Inc., Haverstraw, N. Y.
National Super Service Co., Inc., Toledo 2, Ohio
Pullman Vacuum Cleaner Corp., Boston 11, Mass.
Schaefer Brush Mfg. Co., Milwaukee 4, Wisc.
Unique Art Mfg. Co., Inc., Newark, N. J.

Valves

Air Relief

American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anthony Co., Long Island City 1, N. Y.
Anderson Prods., Cambridge 39, Mass.
Bell & Gossett Co., Morton Grove, Ill.
Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Cooper Co., Clark, Palmyra, N. J.
Crane Co., Chicago 40, Ill.
Detroit Controls Corp., Detroit 8, Mich.
Edward Valves, Inc., E. Chicago, Ind.
Klipfel Valves, Inc., Hamilton, Ohio
Kunkle Valve Co., Fort Wayne 2, Ind.
Lammert & Mann Co., Chicago 12, Ill.
Maid-O-Mist, Inc., Chicago 41, Ill.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Rockwell Co., W. S., Fairfield, Conn.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Taco Heaters, Inc., Providence, R. I.
Watts Regulator Co, Lawrence, Mass.

Angle

Anderson Brass Co., Detroit 8, Mich.
Automatic Switch Co., Orange, N. J.
Buckeye Iron & Brass Works, Dayton 1, Ohio
C-S Brass Mfg. Co., New York 23, N. Y.
Central Brass Mfg. Co., Cleveland, Ohio
Chase Brass & Copper Co., Waterbury 20, Conn.
Couplings Co., Chicago 8, Ill.
Crane Co., Chicago 40, Ill.
Edward Valves, Inc., E. Chicago, Ind.
Grinnell Co., Inc., Providence 1, R. I.
Homestead Valve Mfg. Co., Coraopolis, Pa.
Leggitt Co., S. H., Marshall, Mich.
Marsh Corp., Skokie, Ill.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Ohio Brass Co., Mansfield, Ohio
Oil Eqpt. Mfg. Co., Inc., Louisville 11, Ky.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Reliance Tubular Prod. Co., Cleveland 8, Ohio
Remco, Inc., Baltimore, Md.
Schaible Co., The, Cincinnati 4, Ohio
Span Brass Mfg. Co., Inc., Otsego, Mich.
Strong, Carlisle & Hammond Co., Cleveland 13, Ohio
Universal Brass Corp., Arlington, N. J.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio

Blow-off

Automatic Switch Co., Orange, N. J.
Crane Co., Chicago 40, Ill.
Edward Valves, Inc., E. Chicago, Ind.
General Controls Co., Glendale 1, Calif.
Homestead Valve Mfg. Co., Coraopolis, Pa.
King Eng. Corp., Ann Arbor, Mich.
McDonnell & Miller, Inc., Chicago 18, Ill.
Rockwell Co., W. S., Fairfield, Conn.
Uniblow Valve Co., Cleveland 2, Ohio
Wright-Austin Co., Detroit 7, Mich.

Boiler Feed

Automatic Switch Co., Orange, N. J.
Bell & Gossett Co., Morton Grove, Ill.
Cash Valve Mfg. Corp., A. W., Decatur, Ill.
Central Brass Mfg. Co., Cleveland, Ohio
Crane Co., Chicago 40, Ill.
Edward Valves, Inc., E. Chicago, Ind.
General Controls Co., Glendale 1, Calif.
Homestead Valve Mfg. Co., Coraopolis, Pa.
Klipfel Valves, Inc., Hamilton, Ohio
Magnetrol, Inc., Chicago 23, Ill.
McDonnell & Miller, Inc., Chicago 18, Ill.
Maid-O-Mist, Inc., Chicago 41, Ill.
Triplex Heating Specialty Co., Inc., Peru, Ind.
Watts Regulator Co, Lawrence, Mass.

Emergency, Truck

Betts Machine Co., Warren, Pa.

Exhaust

Automatic Switch Co., Orange, N. J.
Crane Co., Chicago 40, Ill.
General Controls Co., Glendale 1, Calif.
National Fuel Conservation Co., Inc., White Plains, N .Y.
Rockwell Co., W. S., Fairfield, Conn.

Flow Control

A-P Controls Corp., Milwaukee, Wisc.
Anderson Brass Co., Detroit 8, Mich.
Automatic Switch Co., Orange, N. J.
Barber-Colman Co., Rockford, Ill.
Bell & Gossett Co., Morton Grove, Ill.
Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Carleton Supply Co., Hartford 1, Conn.
Cary Mfg. Co., Waupaca, Wisc.
Clark Mfg. Co., Cleveland 14, Ohio
Cash Valve Corp., A. W., Decatur, Ill.
General Controls Co., Glendale 1, Calif.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Hauck Mfg. Co., Brooklyn 15, N. Y.
Homestead Valve Mfg. Co., Coraopolis, Pa.
Leahy Mfg. Co., Los Angeles 21, Calif.
Lientz Mfg. Co., B. P., Kansas City, Mo.
Magnetrol, Inc., Chicago 23, Ill.
McDonnell & Miller, Inc., Chicago 16, Ill.
Maid-O-Mist, Inc., Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
North American Mfg. Co., The, Cleveland 5, Ohio
Philadelphia Valve Co., Philadelphia 34, Pa.
Rockwell Co., W. S., Fairfield, Conn.
Staples & Pfeiffer, San Francisco 7, Calif.
Strong, Carlisle & Hammond Co., Cleveland 13, Ohio
Taco Heaters, Inc., Providence, R. I.
Thrush & Co., H. A., Peru, Ind.
Triplex Heating Specialty, Inc., Peru, Ind.

Fuel Oil

Anderson Brass Co., Detroit 8, Mich.

Furnace Exhaust

Fuel Econ-O-Mizer Co., Providence 5, R. I.

Gate

Automatic Switch Co., Orange, N. J.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Chase Brass & Copper Co., Waterbury 20, Conn.
Crane Co., Chicago 40, Ill.
Edward Valves, Inc., E. Chicago, Ind.

General Controls Co., Glendale 1, Calif.
Guardian Products Corp., Michigan City, Ind.
Leggitt Co., S. H., Marshall, Mich.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Morse-Smith-Morse Co., Watertown, Mass.
Ohio Brass Co., Mansfield, Ohio
Pilgrim Oil Burner Co., Hartford, Conn.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Schaible Co., The, Cincinnati 4, Ohio
Schurs Oil Burner Co., Los Angeles 1, Calif.
Span Brass Mfg. Co., Inc., Otsego, Mich.

Globe

Automatic Switch Co., Orange, N. J.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Central Brass Mfg. Co., Cleveland, Ohio
Chase Brass & Copper Co., Waterbury 20, Conn.
Crane Co., Chicago 40, Ill.
Edward Valves, Inc., E. Chicago, Ind.
Grinnell Co., Inc., Providence 1, R. I.
Guardian Prods. Corp., Michigan City, Ind.
Leggitt Co., S. H., Marshall, Mich.
Marsh Corp., Jas. P., Skokie, Ill.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Morse-Smith-Morse Co., Watertown, Mass.
Ohio Brass Co., Mansfield, Ohio
Pilgrim Oil Burner Co., Hartford, Conn.
Quaker City Iron Works, Inc., Philadelphia 34, Pa.
Remco, Inc., Baltimore, Md.
Schaible Co., The, Cincinnati, Ohio
Span Brass Mfg. Co., Inc., Otsego, Mich.

Humidifier

Barber-Coleman Co., Rockford, Ill.
Cary Mfg. Co., Waupaca, Wisc.
General Controls Co., Glendale 1, Calif.
Lincoln Brass Works, Inc., Detroit 16, Mich.
McDonnell & Miller, Inc., Chicago 18, Ill.
Maid-O-Mist, Inc., Chicago 41, Ill.
Scovill Mfg. Co., Waterbury 20, Conn.

Magnetic

Automatic Switch Co., Orange, N. J.
Barber-Coleman Co., Rockford, Ill.
Bell & Gossett Co., Morton Grove, Ill.
Bryant Heater Div., Cleveland, Ohio
Cary Mfg. Co., Waupaca, Wisc.
Cooper Co., Clark, Palmyra, N. Y.
Detroit Controls Corp., Detroit 8, Mich.
General Controls Co., Glendale 1, Calif.
General Electric Co., Schenectady 5, N. Y.
Johnson Corp., The, Three Rivers, Mich.
Maxon Premix Burner Co., Muncie, Ind.
McDonnell & Miller, Inc., Chicago 18, Ill.
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Penn Controls, Inc., Goshen, Ind.
Perfex Corp., Milwaukee 7, Wisc.
Skinner Electric Valve Div., New Britain, Conn.
Webster Electric Co., Racine, Wisc.

Manifold (Radiant Heating)

Milwaukee Valve Co., Milwaukee 7, Wisc.

Manifold, Truck

Betts Machine Co., Warren, Pa.

Mixing

Automatic Switch Co., Orange, N. J.
Barber-Colman Co., Rockford, Ill.
Bell & Gossett Co., Morton Grove, Ill.
Detroit Controls Corp., Detroit 8, Mich.
General Electric Co., Schenectady 5, N. Y.
General Fittings Co., Providence, R. I.
Lawler Automatic Controls, Inc., Mt. Vernon, N. Y.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
North American Mfg. Co., The, Cleveland 5, Ohio
Sarco Co., Inc., New York 1, N. Y.
Taco Heaters, Inc., Providence, R. I.
Watts Regulator Co., Lawrence, Mass.
Yula Water Heaters, Inc., New York 63, N. Y.

Motor-Operated

Barber-Coleman Co., Rockford, Ill.
Bell & Gossett Co., Morton Grove, Ill.
Crane Co., Chicago 40, Ill.
Dunham Co., C. A., Chicago, Ill.
Fuel Watchman, Inc., New York 5, N. Y.
General Controls Co., Glendale 1, Calif.
Grinnell Co., Inc., Providence 1, R. I.
Heat-Timer Corp., New York 12, N. Y.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Homestead Valve Mfg. Co., Coraopolis, Pa.
Mercoid Corp., The, Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
North American Mfg. Co., The, Cleveland 5, Ohio
Rockwell Co., W. S., Fairfield, Conn.
Sarco Co., Inc., New York 1, N. Y.

Needle

Anderson Brass Co., Detroit 8, Mich.
Automatic Switch Co., Orange, N. J.
Best Brass Co., Marshall, Mich.
Buckeye Iron & Brass Works, Dayton 1, Ohio
C-S Brass Mfg. Co., New York 23, N. Y.
Carleton Supply Co., Hartford 1, Conn.
Cary Mfg. Co., Waupaca, Wisc.
Central Brass Mfg. Co., Cleveland, Ohio
Couplings Co., Chicago 8, Ill.
Crane Co., Chicago 40, Ill.
Edward Valves, Inc., E. Chicago, Ind.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
King Eng. Corp., Ann Arbor, Mich.
Leggitt Co., S. H., Marshall, Mich.
Lincoln Brass Works, Inc., Detroit 16, Mich.
McDonnell & Miller, Inc., Chicago 18, Ill.
Madden Brass Prod. Co., Chicago 11, Ill.
Maid-O-Mist, Inc., Chicago 41, Ill.
Marsh Corp., Jas. P., Skokie, Ill.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Ohio Brass Co., Mansfield, Ohio
Reliance Tubular Prod. Co., Cleveland 8, Ohio
Renneburg & Sons Co., Edw., Baltimore 24, Md.
Schurs Oil Burner Co., Los Angeles 1, Calif.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Universal Brass Corp., Arlington, N. J.
Wayne Brass Co., Inc., Ft. Wayne, Ind.
Weatherhead Co., The, Cleveland 8, Ohio
Werco Prods., Chicago 50, Ill.
Wilgus Mfg. Co., Los Angeles 21, Calif.

Oil, Anti-hum

Cary Mfg. Co., Waupaca, Wisc.
General Controls Co., Glendale 1, Calif.
Guardian Prods. Corp., Michigan City, Ind.
Hold-Tite Valve Mfg. Co., Brooklyn 26, N. Y.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Morse-Smith-Morse Co., Watertown, Wisc.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Therm Gas Generator Co., Inc., Seattle, Wash.

Oil, Anti-syphon

Burn-Rite Prods. Co., Yonkers 2, N. Y.
Hold-Tite Valve Mfg. Co., Brooklyn 26, N. Y.
Lammert & Mann Co., Chicago 12, Ill.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Silent Flame Mfg. Co., Inc., New York 72, N. Y.

Oil, Check

Buckeye Iron & Brass Works, Dayton 1, Ohio
Crane Co., Chicago 40, Ill.
Edward Valves, Inc., E. Chicago, Ind.
Hold-Tite Valve Mfg. Co., Brooklyn 26, N. Y.
Hydrovalve Co., Brooklyn 3, N. Y.
Lammert & Mann Co., Chicago 12, Ill.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Morse-Smith-Morse Co., Watertown, Mass.
Oil Eqpt. Mfg. Co., Inc., Louisville 11, Ky.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.

Oil, Float

Autopulse Corp., Ludington, Mich.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Cooper Co., Clark, Palmyra, N. Y.
Detroit Controls Corp., Detroit 8, Mich.
Klipfel Valves, Inc., Hamilton, Ohio
Miller Co., The, Meriden, Conn.
Platt Prods. Corp., Lansing 4, Mich.

Oil, Foot

Buckeye Iron & Brass Works, Dayton 1, Ohio
Crane Co., Chicago 40, Ill.
Hold-Tite Valve Mfg. Co., New York 22, N. Y.
Kunkle Valve Co., Ft. Wayne 2, Ind.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Oil Eqpt. Mfg. Co., Inc., Louisville 11, Ky.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Wilgus Mfg. Co., Los Angeles 21, Calif.

Oil, Fusible

Hold-Tite Valve Mfg. Co., Brooklyn 26, N. Y.
Morse-Smith-Morse Co., Watertown, Mass.
Oil Eqpt. Mfg. Co., Inc., Louisville 11, Ky.
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Worcester Taper Pin Co., Worcester, Mass.

Oil, Metering

A-P Controls Corp., Milwaukee, Wisc.
Allied Tank Truck Eqpt. Co., Philadelphia 30, Pa.
Automatic Switch Co., Orange, N. J.
Cary Mfg. Co., Waupaca, Wisc.
Detroit Controls Corp., Detroit 8, Mich.
General Controls Co., Glendale 1, Calif.
Henzey Co., Watertown, Wisc.
McDonnell & Miller, Inc., Chicago 18, Ill.
North American Mfg. Co., The, Cleveland 5, Ohio
Preferred Utilities Mfg. Corp., New York 23, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Staples & Pfeiffer, San Francisco 7, Calif.

Oil, Non-metering

Platt Prods. Corp., Lansing 4, Mich.

Oil, Pressure-regulating

Automatic Switch Co., Orange, N. J.
Anthony Co., Long Island City 1, N. Y.
Barnes & Jones Co., Boston 31, Mass.
Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Cary Mfg. Co., Waupaca, Wisc.
Cash Valve Mfg. Corp., A. W., Decatur, Ill.
Chandler Co., Cedar Rapids, Iowa
Clark Mfg. Co., Cleveland 14, Ohio
Cooper Co., Clark, Palmyra, N. Y.
Detroit Controls Corp., Detroit 8, Mich.
Eddington Metal Specialty Co., Eddington, Pa.
Fulton Sylphon Div., Knoxville 1, Tenn.
Hammel Oil Burning Eqpt. Co., Providence, R. I.
Harvey, Inc., Sid, Valley Stream, N. Y.
Klipfel Valves, Inc., Hamilton, Ohio
Kunkle Valve Co., Ft. Wayne 7, Ind.
Monarch Mfg. Works, Inc., Philadelphia 34, Pa.
Mueller Steam Specialty Co., Inc., Long Island City 4, N. Y.
National Oil Burner Co. of N. Y., Inc., Brooklyn, N. Y.
Ray Oil Burner Co., San Francisco 12, Calif.
Staples & Pfeiffer, San Francisco 7, Calif.
Wilgus Mfg. Co., Los Angeles 21, Calif.

Oil, Safety Cut-off

Harvey, Inc., Sid, Valley Stream, N. Y.

Oil, Solenoid

A-P Controls Corp., Milwaukee, Wisc.
Automatic Switch Co., Orange, N. J.
Cary Mfg., Waupaca, Wisc.
Cooper Co., Clark, Palmyra, N. Y.
Detroit Controls Corp., Detroit 8, Mich.
General Controls Co., Glendale 1, Calif.
Lammert & Mann Co., Chicago 12, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Ray Oil Burner Co., San Francisco 12, Calif.
Sarco Co., Inc., New York 1, N. Y.
Square D Co., Milwaukee 12, Wisc.
Union Spring & Mfg. Co., Jersey City, N. J.
Webster Electric Co., Racine, Wisc.

Oil, 3-Way-Tank

Anderson Brass Co., Detroit 8, Mich.
Automatic Switch Co., Orange, N. J.
Detroit Controls Corp., Detroit 8, Mich.
General Controls Co., Glendale 1, Calif.
Homestead Valve Mfg. Co., Coraopolis, Pa.
Imperial Brass Mfg. Co., Chicago 7, Ill.
Leggitt Co., S. H., Marshall, Mich.
Lincoln Brass Works, Inc., Detroit 16, Mich.
Therm Gas Generator Co., Inc., Seattle, Wash.
Universal Brass Corp., Arlington, N. J.
Werco Prods., Chicago 50, Ill.

Plug

C-S Brass Mfg. Co., New York 23, N. Y.
Cooper Co., Clark, Palmyra, N. Y.
Couplings Co., Chicago, Ill.
Crane Co., Chicago 40, Ill.
Homestead Valve Mfg. Co., Coraopolis, Pa.
Imperial Brass Mfg. Co., The, Chicago 7, Ill.
Rockwell Mfg. Co., Pittsburgh, Pa.
Schoenberger Co., The W. J., Cleveland 5, Ohio

Pop, Safety

Buckeye Iron & Brass Works, Dayton 1, Ohio
Cash Valve Mfg. Corp., A. W., Decatur, Ill.
Cooper Co., Clark, Palmyra, N. Y.
Crane Co., Chicago 40, Ill.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
Kunkle Valve Co., Ft. Wayne 2, Ind.
Schaible Co., The, Cincinnati 4, Ohio
Watts Regulator Co., Lawrence, Mass.

Radiator, Adjustable Orifice

Anderson Products, Inc., Cambridge 39, Mass.
Barnes & Jones, Inc., Boston 30, Mass.
Detroit Controls Corp., Detroit 8, Mich.
Dunham Co., C. A., Chicago, Ill.
Grinnell Co., Inc., Providence 1, R. I.
Heat Timer Corp., New York 12, N. Y.
New York Air Valve Corp., Brooklyn, N. Y.

Radiator, Air (Above 3 lbs.)

Anderson Prods., Cambridge 39, Mass.
Detroit Controls Corp., Detroit 8, Mich.
Dole Valve Co., Chicago, Ill.
Dunham Co., C. A., Chicago, Ill.
Gorton Heating Corp., Cranford, N. J.
Grinnell Co., Inc., Providence 1, R. I.
Heat Timer Corp., New York 12, N. Y.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Marsh Corp., Jas. P., Skokie, Ill.
New York Air Valve Corp., Brooklyn, N. Y.
Schaible Co., Cincinnati, Ohio
Thrush & Co., H. A., Peru, Ind.

Radiator, Air (Below 3 lbs.)

American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Anderson Prods., Cambridge 39, Mass.
Detroit Controls Corp., Detroit 8, Mich.
Dole Valve Co., Chicago 10, Ill.
Dunham Co., C. A., Chicago, Ill.
Gorton Htg. Corp., Cranford, N. J.
Grinnell Co., Inc., Providence 1, R. I.
Heat Timer Corp., New York 12, N. Y.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Marsh Corp., Jas. P., Skokie, Ill.
Multiplex Mfg. Co., Berwick, Pa.
New York Air Valve Corp., Brooklyn, N. Y.
Schaible Co., The, Cincinnati 4, Ohio
Thrush & Co., H. A., Peru, Ind.

Radiator, Control Electric

Barber-Coleman Co., Rockford, Ill.
General Controls Co., Glendale 1, Calif.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Penn Controls, Inc., Goshen, Ind.

Radiator, Control Pneumatic

Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

Radiator, Control Self-Actuated

Barber-Colman Co., Rockford, Ill.
Fulton Sylphon Div., Knoxville 1, Tenn.
Grinnell Co., Inc., Providence 1, R. I.
Heat Timer Corp., New York 12, N. Y.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Sarco Co., Inc., New York 1, N. Y.
Sterling, Inc., Milwaukee 12, Wisc.

Radiator, Manual Modulating

Barnes & Jones, Inc., Boston 30, Mass.
Grinnell Co., Inc., Providence 1, R. I.

Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Sarco Co., Inc., New York 1, N. Y.
Sterling, Inc., Milwaukee 12, Wisc.
Trane Co., The, La Crosse, Wisc.

Radiator, Manual On-Off

American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Barnes & Jones, Inc., Boston 30, Mass.
Crane Co., Chicago 40, Ill.
Detroit Controls Corp., Detroit 8, Mich.
Dunham Co., C. A., Chicago, Ill.
Fulton Sylphon Div., Knoxville 1, Tenn.
Grinnell Co., Inc., Providence 1, R. I.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Ohio Brass Co., Mansfield, Ohio
Sarco Co., Inc., New York 1, N. Y.
Sterling, Inc., Milwaukee 12, Wisc.
Trane Co., The, La Crosse, Wisc.

Radiator, Vacuum

Anderson Prods., Cambridge 39, Mass.
Barnes & Jones, Inc., Boston 30, Mass.
Detroit Controls Corp., Detroit 8, Mich.
Dole Valve Co., Chicago 10, Ill.
Dunham Co., C. A., Chicago, Ill.
Fulton Sylphon Div., Knoxville, Tenn.
Grinnell Co., Inc., Providence 1, R. I.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Ohio Brass Co., Mansfield, Ohio
Sarco Co., Inc., New York 1, N. Y.
Schaible Co., The, Cincinnati 4, Ohio

Relief

American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Bell & Gossett Co., Morton Grove, Ill.
Blackmer Pump Co., Grand Rapids 9, Mich.
Buckeye Iron & Brass Works, Dayton 1, Ohio
Cash Valve Mfg. Corp., A. W., Decatur, Ill.
Cooper Co., Clark, Palmyra, N. Y.
Crane Co., Chicago 40, Ill.
Edward Valves, Inc., E. Chicago, Ind.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
General Controls Co., Glendale 1, Calif.
Homestead Valve Mfg. Co., Coraopolis, Pa.
Klipfel Valves, Inc., Hamilton, Ohio
Kunkle Valve Co., Ft. Wayne 2, Ind.
Lammert & Mann Co., Chicago 12, Ill.
Leahy Mfg. Co., Los Angeles 21, Calif.
McDonnell & Miller, Inc., Chicago 18, Ill.
Milwaukee Valve Co., Milwaukee 7, Wisc.
Mueller Co., Decatur, Ill.
Ray Oil Burner Co., San Francisco 12, Calif.
Schaible Co., The, Cincinnati 4, Ohio
Schoenberger Co., The W. J., Cleveland 5, Ohio
Shand & Jurs Co., Berkeley 10, Calif.
Span Brass Mfg. Co., Inc., Otsego, Mich.
Spencer Thermostat Div., Attleboro, Mass.
Taco Heaters, Inc., Providence, R. I.
Thrush & Co., H. A., Peru, Ind.
Trane Co., The, La Crosse, Wisc.
Triplex Heating & Specialty Co., Inc., Peru, Ind.
Tuthill Pump Co., Chicago 19, Ill.
Watts Regulator Co., Lawrence, Mass.
Weatherhead Co., The, Cleveland 8, Ohio

Saddle Valve

Maid-O-Mist, Inc., Chicago 41, Ill.

Safety

Automatic Switch Co., Orange, N. J.
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Cash Valve Mfg. Corp., A. W., Decatur, Ill.
Cooper Co., Clark, Palmyra, N. Y.
Crane Co., Chicago 40, Ill.
Eclipse Fuel Mfg. Co., Rockford, Ill.
Fitzgibbons Boiler Co., Inc., New York 17, N. Y.
General Controls Co., Glendale 1, Calif.
Kunkle Valve Co., Ft. Wayne 2, Ind.
McDonnell & Miller, Inc., Chicago 18, Ill.
Maxon Premix Burner Co., Muncie, Ind.
Mueller Co., Decatur, Ill.
North American Mfg. Co., The, Cleveland 5, Ohio
Oil Eqpt. Mfg. Co., Inc., Louisville 11, Ky.
Shand & Jurs Co., Berkeley 10, Calif.
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Beaton & Cadwell Mfg. Co., New Britain, Conn.
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McDonnell & Miller, Inc., Chicago 18, Ill.
Mueller Co., Decatur, Ill.
Schaible Co., The, Cincinnati 4, Ohio
Schoenberger Co., The W. J., Cleveland 5, Ohio
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Sarco Co., Inc., New York 1, N. Y.
Sterling, Inc., Milwaukee 12, Wisc.
Taco Heaters, Inc., Providence, R. I.
Watts Regulator Co., Lawrence, Mass.
Yula Water Heaters, Inc., New York 63, N. Y.

Thermostatic

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Alco Valve Co., St. Louis, Mo.
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Detroit Controls Corp., Detroit 6, Mich.
Dunham Co., C. A., Chicago, Ill.
General Controls Co., Glendale 1, Calif.
Grinnell Co., Inc., Providence 1, R. I.
Heat Timer Corp., New York 12, N. Y.
Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Klipfel Valves, Inc., Hamilton, Ohio
Lawler Automatic Controls, Inc., Mt. Vernon, N. Y.
McDonnell & Miller, Inc., Chicago 18, Ill.
Milwaukee Valve Co., Milwaukee 7, Wis.
Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.
Sarco Co., Inc., New York 1, N. Y.
Sterling, Inc., Milwaukee 12, Wisc.
Trane Co., The, La Crosse, Wisc.
Yula Water Heaters, Inc., New York 63, N. Y.

Vacuum, Breaking

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Cash Valve Mfg. Corp., A. W., Decatur, Ill.
Crane Co., Chicago 40, Ill.
Dunham Co., C. A., Chicago, Ill.

Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
Hold-Tite Valve Mfg. Co., Brooklyn 26, N. Y.
Shand & Jurs Co., Berkeley 10, Calif.
Skidmore Corp., St. Joseph, Mo.
Watts Regulator Co., Lawrence, Mass.

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Gorton Htg. Corp., Cranford, N. J.
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Hoffman Specialty Mfg. Corp., Indianapolis 7, Ind.
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Marsh Corp., Jas. P., Skokie, Ill.
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Shand & Jurs Co., Berkeley 10, Calif.
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Trane Co., The, La Crosse, Wisc.
Wheaton Brass Works, Union, N. J.

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Kresno-Stamm Mfg. Co., Palisades Park, N. J.
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Major Oil Burner Co., Philadelphia 22, Pa.
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Safety Prods. Co., Brockton, Mass.
Therm Gas Generator Co., Inc., Seattle, Wash.
Timken Silent Automatic Div., Jackson, Mich.

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Aqua Air Corp., Elmont, N. Y.
Bell & Gossett Co., Morton Grove, Ill.
Bernstrom, Inc., C. R., Providence, R. I.
Davis Eng. Corp., New York 33, N. Y.
Dewey-Shepard Boiler Co., Indianapolis 2, Ind.
Fitzgibbons Boiler Co., New York 17, N. Y.
General Electric Co., Bloomfield, N. J.
General Fittings Co., Providence 5, R. I.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
National Rad. Co., The, Johnstown, Pa.
Norse Boiler Co., Inc., New Market, N. J.
Novelty Steam Boiler Works, Inc., Baltimore 30, Md.
O'Brien Steam Specialty Co., Inc., Syracuse 2, N. Y.
Triangle Tube & Specialty Co., Berlin, N. J.
U. S. Machine Div., Lebanon, Ind.
Water Tube Boiler & Tank Co., Chicago, Ill.
Yula Water Heaters, Inc., New York 63, N. Y.

Indirect Tank, External

Alstrom Corp., New York 60, N. Y.
American District Steam Co., Inc., N. Tonawanda, N. Y.
American Tube Prods., Inc., Natick, R. I.
Aqua Air Corp., Elmont, N. Y.
Bell & Gossett Co., Morton Grove, Ill.
Bernstrom, Inc., C. R., Providence, R. I.
Clayton Mfg. Co., El Monte, Calif.
Davis Eng. Corp., New York 33, N. Y.
General Fittings Co., Providence 5, R. I.
Gerstein & Cooper, Inc., So. Boston 27, Mass.
Kam Water Heater Mfg. Co., Inc., Brooklyn, N. Y.
Lawson Mfg. Co., Pittsburgh 8, Pa.
Lindy Heaters, Inc., Bronx, N. Y.
Manning & Lewis Eng. Co., Newark 4, N. J.
Mund Boilers, Inc., Los Angeles 63, Calif.
Novelty Steam Boiler Works, Inc., Baltimore 30, Md.
O'Brien Steam Specialty Co., Inc., Syracuse 2, N. Y.
Thrush & Co., H. A., Peru, Ind.
Yula Water Heaters, Inc., New York 3, N. Y.

Indirect Tank, External for Warm Air Furnaces

American Tube Prods., Inc., Natick, R. I.

Indirect Tankless, Built-In

Alstrom Corp., New York 60, N. Y.
American Tube Prods., Inc., Natick, R. I.
American Rad. & Std. Sanitary Corp., Pittsburgh 30, Pa.
Barridon Oil Burner Corp., Hartford, Conn.
Bell & Gossett Co., Morton Grove, Ill.
Bernstrom, Inc., C. R., Providence, R. I.
Clayton Mfg. Co., El Monte, Calif.
Davis Eng. Corp., New York 33, N. Y.
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Federal Boiler Co., Inc., Midland Park, N. J.
Fitzgibbons Boiler Co., New York 17, N. Y.
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General Fittings Co., Providence 5, R. I.
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Lindy Heaters, Inc., Bronx, N. Y.
Manning & Lewis Eng. Co., Newark 4, N. J.
Marietta Metal Prods. Corp., Marietta, Pa.
National Rad. Co., The, Johnstown, Pa.
Novelty Steam Boiler Works, nIc., Baltimore 30, Md.
Portmar Boiler Co., Inc., Brooklyn, N. Y.
Taco Heaters, Inc., Providence, R. I.
Triangle Tube & Specialty Co., Berlin, N. J.
Triplex Heating Specialty Co., Inc., Peru, Ind.
U. S. Machine Div., Lebanon, Ind.
Utica Rad. Corp., Utica, N. Y.
Water Tube Boiler & Tank Co., Chicago, Ill.
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Yula Water Heaters, Inc., New York 63, N. Y.

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Lindy Heaters, Inc., Bronx, N. Y.
Novelty Steam Boiler Works, Inc., Baltimore 30, Md.
Ret-Rac Corp., Flushing, N. Y.
Taco Heaters, Inc., Providence, R. I.
Thrush & Co., H. A., Peru, Ind.
Water Tube Boiler & Tank Co., Chicago, Ill.
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Coleman Co., Inc., The, Wichita, Kans.
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Hotstream Heater Co., Cleveland, Ohio
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Macleod Co., Cincinnati 22, Ohio
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Wisconsin Oilburner Co., Madison 5, Wisc.

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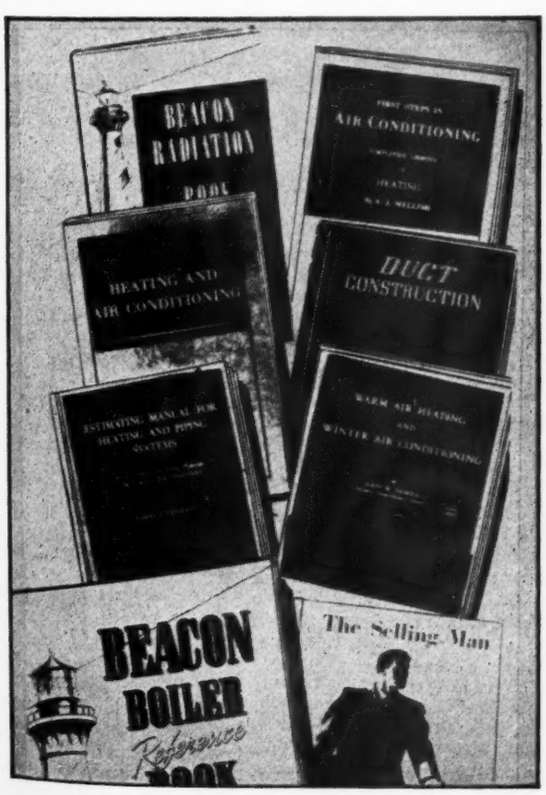

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Berkley Mfg. Co., 2045 No. Second St., Philadelphia 22, Pa.
Bernstrom, C. R., 183 Hartford Ave., Providence, R. I.
Berkshire Transformer Corp., 15 South Ave., New Milford, Conn.
Besser Metal Products Corp., 754 Clement Ave., Charlotte 4, N. C.
Best Brass Co., 325 High St., Marshall, Mich.
Best Combustion Eqpt. Co., Inc., 411-15 Eleventh St., Carlstadt, N. J.
Bethlehem Fdry. & Machine Co., 225 W. Second St., Bethlehem, Pa.
Bettendorf Oil Burner Co., Marshalltown, Iowa
Bett-Mar Mfg. Co., 621 E. Excelsior, Hopkins, Minn.
Betts Machine Co., 1800 Pennsylvania Ave., W., Warren, Pa.
Beverly Shear Mfg. Co., The, 3023 W. 111th St., Chicago 43, Ill.
Beyer Oil Burner Co., Rosamond, Calif.
Biggs Boiler Works Co., The, 1007 Bank St., Akron, Ohio
Billings, Inc., 549 Longfellow Ave., Bronx 59, N. Y.
Billow Corp., 565 W. Washington Blvd., Chicago 6, Ill.
Bishop & Babcock Mfg. Co., The, 4901 Hamilton Ave., Cleveland, Ohio
Black, Sivalls & Bryson, Inc., 7500 E. 12th St., Kansas City 3, Mo.
Blackmer Pump Co., 1809 Century Ave., Grand Rapids 9, Mich.
Bland Burner Co., 83 Woodbine St., Hartford, Conn.
Bock Corp., 110 Dickson, S., Madison 4, Wisc.
Boggs Boiler Co., 1007 Bank, Akron, Ohio
Boiler Eng. & Supply Co., Inc., Manavon St., Phoenixville, Pa.
Boston Auto Gage Co., The, 70 West St., Pittsfield, Mass.
Bovee Furnace Works, 180 W. Eighth St., Waterloo, Iowa
Boston Machine Works Co., The, 7 Willow St., Lynn, Mass.
Bowser, Inc., 1302 Creighton Ave., Fort Wayne 2, Ind.
Bradford Price Book, 96 Washington St., Quincy 69, Mass.
Bradley Mfg. Works, Bradley, Ill.
Brandenberg Industries, Inc., 6390 Falls Rd., Baltimore 9, Md.
Brandes Co., 2046 Winnebago St., Madison 4, Wisc.
Braun Bros. Oil Co., 812 Oak St., Winnetka, Ill.
Breese Burners, Inc., P. O. Box 4158, Coronado Sta., Santa Fe, N. M.
Bressler Eng. Service, 509 Fourth Ave., Oregon 1, Ill.
Breuer Electric Mfg. Co., 5100 No. Ravenswood Ave., Chicago 40, Ill.
Brodie Co., Inc., Ralph N., Alvarado & West 137th Ave., San Leandro, Calif.
Brown-Appton Co., 681 Fifth Ave., New York 22, N. Y.
Brown Fintube Co., The, 300 Huron St., Elyria, Ohio
Brown Oil Burning Eqpt. Co., 312 Massachusetts Ave., Cambridge 39, Mass.
Brown Products Co., 97-12 Metropolitan Ave., Forest Hills 75, N. Y.
Brown Steel Tank Co., 2901 S.E. Fourth St., Minneapolis 14, Minn.
Brumme Mfg. Co., 1240 E. Empire St., Bloomington, Ill.
Brundage Co., The, 512 No. Park, Kalamazoo 11, Mich.
Brunner Mfg. Co., 1821 Broad St., Utica 1, N. Y.
Bryan Steam Corp., P. O. Box 337, Peru, Ind.
Bryant Air Conditioning Corp., 35 E. Poplar St., Philadelphia 23, Pa.
Bryant Heater Div., Affiliated Gas Eqpt., Inc., 17825 St. Clair Ave., Cleveland 10, Ohio
Bryant Corp., C. L., 2720 E. 79 St., Cleveland, O.
Buckeye Furnace Pipe Co., 897 Ingleside Ave., Columbus, Ohio
Buckeye Iron & Brass Works, 324 E. Third St., P. O. Box 883, Dayton 1, Ohio
Buffalo Forge Co., Inc., 490 Broadway, Buffalo, N. Y.
Burcar Mfg. Co., The, Market St., Stamford, Conn.
Burke Eng. Co., 1204 W. Washington Blvd., Los Angeles 7, Calif.
Burkhardt Eng. Assoc., 30 Huntington Ave., Boston, Mass.
Burnham Corp., Boiler Div., 2 Main St., Irvington, N. Y.
Burn-Rite Products Co., 354 Saw Mill River Rd., Yonkers 2, N. Y.
Burtchaell Htg. Co., 2944 S.E. Powell, Portland 2, Ore.
Bush Mfg. Co., 179 South St., W. Hartford 10, Conn.
Bussman Mfg. Co., University at Jefferson, St. Louis 7, Mo.
Butler Mfg. Co., 7400 E. 13th St., Kansas City 26, Mo.

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C-S Brass Mfg. Co., 148 W. 62d St., New York 23, N. Y.
Calculator Specialties Co., 122 S. Michigan Ave., Chicago, Ill.
Caloroil Burner Corp., 850 Windsor St., Hartford, Conn.
Campbell Machine Co., 2921 Stevens Ave., Minneapolis, Minn.
Campbell Co., E. K., 1809 Manchester St., Kansas City 4, Mo.
Campbell Heating Co., 3121 Dean St., Des Moines 17, Iowa
Cam-Stat Inc., Div. of Paul Henry Co., 11833 W. Olympic Blvd., Los Angeles 64, Calif.
Cannon Chemical Co., Inc., 181 Portland St., Cambridge 41, Mass.
Cantleek Products Corp., 135-39 Northern Blvd., Flushing 52, N. Y.
Capitol Mfg. & Supply Co., The, 153 Fulton St., W. Columbus 10, Ohio
Capson Co., Inc., 108 Rogers Ave., Brooklyn, N. Y.
Carboloy Dept., General Electric Co., 1117 E. Eight & Miller Rd., Detroit 32, Mich.
Carlin Co., The, River Rd., P. O. Box 32, Wethersfield, Conn.
Carlyle Rubber Co., Inc., 64 Park Pl., New York 7, N. Y.
Carlton Supply Co., Carlton Mfg. Co. Div., 35 Chapel St., P. O. Box 583, Hartford 1, Conn.
Carolina Refractories Co., P. O. Box 549, Hartsville, S. C.
Carrier Corp., 300 So. Geddes St., Syracuse 1, N. Y.
Carver Pump Co., 1056 Heushey Ave., Muscatine, Iowa
Cary Mfg. Co., Churchill St., Paupaca, Wisc.
Carey Mfg. Co., The Philip, Cincinnati 15, Ohio
Cash Valve Mfg. Corp., A. W., 666 E. Wabash Ave., Decatur, Ill.
Central Brass Mfg. Co., 2950 E. 55th St., Cleveland 4, Ohio
Century Electric Co., 1806 Pine St., St. Louis 3, Mo.
Century Eng. Corp., 403 Third St., S.E., Cedar Rapids, Iowa
Certified Furnace Co., Div. of Stainless & Steel Products Co., 1000 Berry Ave., St. Paul 4, Minn.
Chalmers Oil Burner Co., 312 Lumber Exchange Bldg., Minneapolis 1, Minn.
Champion Bronze Powder & Paint Co., 2526 W. Van Buren St., Chicago 12, Ill.
Chandler Co., 804 First Ave., N.W., Cedar Rapids, Iowa
Char-Gale Mfg. Co., Anoka, Minn.
Chase Brass & Copper Co., 236 Grand St., Waterbury 20, Conn.
Charter Oak Stove & Range Co., 7734 Hall St., St. Louis 15, Mo.
Chelsea Products, Inc., Chelsea, Mich.
Chester Cable Corp., 1000 View St., Chester, N. Y.
Chevrolet Motor Div., General Motors Corp., General Motors Bldg., Detroit 2, Mich.
Chicago Steel Furnace Co., 9326 So. Anthony Ave., Chicago 17, Ill.
Chimney Furnace Corp., 400 Stonestreet Ave., Rockville, Md.

Chimney Furnace-Western, 2310 Rainier Ave., Seattle 44, Wash.
Chimney Sales Corp., P. O. Box 146, Fredericksburg, Va.
Cities Service Oil Co. Pa., 70 Pine St., New York, N. Y.
Citro Oil Burners Corp., 222 Lakeside Ave., Pompton Lakes, N. J.
Clarage Fan Co., North & Porter Sts., Kalamazoo 16, Mich.
Clark Mfg. Co., 1830 E. 38th St., Cleveland 14, Ohio
Clarkstan Corp., 11921 W. Pico Blvd., Los Angeles 64, Calif.
Clayton & Lambert Mfg. Co., 1701 Dixie Highway, Louisville 10, Ky.
Clayton Mfg. Co., P. O. Box 550, El Monte, Calif.
Cleaver Brooks Co., 326 E. Keefe Ave., Milwaukee 12, Wisc.
Cleen Sweep Co., P. O. Box 156, So. Lansing 9, Mich.
Cleveland Fuel Eqpt. Co., 1111 Brookpark Rd., Cleveland 9, Ohio
Cleveland Humidifier Co., 7803 Wade Park Ave., Cleveland 3, Ohio
Climax Flexible Coupling Co., The, 863 E. 140th St., Cleveland 10, Ohio
Climatemaker Slide Rule, The, 1404 E. Washington St., Bloomington, Ill.
Clinton Metallic Paint Co., Clinton, N. Y.
Coal-O-Matic Co., Main St., Dallas, Pa.
Coleman Co., Inc., The, 250 No. St. Francis, Wichita 1, Kans.
Cole-Sewell Eng. Co., 2288 University Ave., St. Paul 14, Minn.
Columbia Boiler Co., Pottstown, Pa.
Columbian Steel Tank Co., 1509 W. 12th St., Kansas City 1, Mo.
Coombination Boiler Co., Benton Harbor, Mich.
Combustion Control Corp., 718 Beacon St., Boston 15, Mass.
Combustioneer Div., Steel Products Eng. Co., The, 1205 W. Columbia St., Springfield, Ohio
Commercial Filters Corp., 2 Main St., Melrose 76, Mass.
Conco Eng. Works, Box 111, Mendota, Ill.
Concord Oil Corp., One Bay Blvd., Lawrence, L. I., N. Y.
Condensation Eng. Corp., 3511 W. Potomac Ave., Chicago 51, Ill.
Connelley Co., 3100 Washington Blvd., St. Louis 3, Mo.
Connecticut Refining Co., 105 Water St., W. Haven, Conn.
Conn.-State Furnace Co., The, 340 Kossuth St., Bridgeport, Conn.
Connor Eng. Corp., Shelter Rock Lane, Danbury, Conn.
Consolidated Industries, Inc., Bypass 52, Lafayette, Ind.
Conshperes Co., 38 Harrison Ave., New Canaan, Conn.
Continental Radiant Glass Heating Corp., 1 E. 35th St., New York 16, N. Y.
Continental Water Heater Co., 1801 Pasadena Ave., Los Angeles 3, Calif.
Cool-ette, Inc., 20080 James Couzens Hy., Detroit 35, Mich.
Cooper Co., Clark, Clark St., Palmyra, N. J.
Coppus Eng. Corp., Worcester 2, Mass.
Corbman Bros. Co., Inc., 25th & York Sts., Philadelphia, Pa.
Corlett-Turner Co., 1001 So. Kostner Ave., Chicago 24, Ill.
Coroaire Heater Corp., 1422 Euclid Ave., Cleveland 15, Ohio
Coughlan Co., G. N., 29 Spring St., West Orange, N. J.
Couplings Co., The, 2205 W. Roosevelt Rd., Chicago 16, Ill.
Cox Mfg. Co., N. Walnut, Ridgeville, Ind.
Crane Co., 836 So. Michigan Ave., Chicago 5, Ill.
Crane Packing Co., 1800 Cuyler Ave., Chicago 13, Ill.
Crise Controls Div., Acro Mfg. Co., 2040 E. Main St., Columbus 16, Ohio
Cristy Specialty Corp., 21 Putnam Ave., Worcester, Mass.
Cromwell Printery, Inc., 61 Hudson Ave., Albany, N. Y.
Crotty Mfg. Co., Inc., The, 133-12 35th Ave., Flushing, N. Y.
Crown Eng. Corp., Locust St., Keyport, N. J.
Crown Petroleum Corp., 92 Walnut St., Hartford, Conn.
Cuno Eng. Corp., 80 So. Vine St., Meriden, Conn.
Cuthrell Machine Works, 3505 Franklin St., Norfolk 6, Va.
Cutler-Hammer, Inc., 315 No. 12th St., Milwaukee 1, Wisc.
Cyclotherm Div., U. S. Radiator Corp., 157 E. First St., Oswego, N. Y.

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D & C Eqpt. Co., 10 Edwards St., Hartford, Conn.
Damp-Vent Co., Box 203F, Bettendorf, Ia.
"David" Automatic Oil Burners, 229 Morse St., Camden, N. J.
Davis Eng. Corp., 30 Rockefeller Plaza, New York 20, N. Y.
Decker Bros., 300 Lincoln Ave., Hawthorne, N. J.
Defender Instrument & Regulator Co., 815 Clark Ave., St. Louis, Mo.
Degree Day Systems, 3930 58th St., Woodside 77, L. I., N. Y.
DeLaval Steam Turbine Co., 853 Nottingham Way, Trenton 2, N. J.
Delavan Mfg. Co., 811 Fourth St., W. Des Moines, Iowa
Delco Appliance Div., General Motors Corp., 391 Lyell Ave., Rochester 1, N. Y.
Delco Products Div., General Motors Corp., 329 E. First St., Dayton 1, Ohio
D'Elia Oil Burner Co., Inc., 145 Stratford Ave., Bridgeport 8, Conn.
Delta Heating Corp., 1 Cole St., Trenton 8, N. J.
Denver Fire Clay Co., 2301 Blake St., Denver 17, Colo.
Des Moines Furnace & Stove Repair Co., 107 S.W. Second Ave., Des Moines 5, Iowa
DeSoto Oil Burner Co., 538 S. Queen St., York, Pa.
Detroit Controls Corp., 5900 Trumbull Ave., Detroit 8, Mich.
Dewey Gas Furnace Co., 101 E. Baltimore, Detroit 2, Mich.
Dewey-Shepard Boiler Co., 1311 No. Capitol Ave., Indianapolis 2, Ind.
Diamond Instrument Co., North Ave., Wakefield, Mass.
Diamond Iron Works, Inc., 1728 Second Street No., Minneapolis 11, Minn.
Diamond Power Specialty Corp., P. O. Box 415, Lancaster, Ohio
Dielectric Products Co., Inc., 125 Virginia Ave., Jersey City 5, N. J.
Diesel Burner Co., The, Moosup, Conn.
Diesel Oil Burner Corp. of New York, 105-20 New York Blvd., Jamaica 5, N. Y.
Dixon Boiler Works, 1625 Naud St., Los Angeles, Calif.
Dixon Mfg. Co., 808 Ingleside Ave., Baltimore 28, Md.
Dodge Div., Chrysler Corp., 21500 Mound Rd., Detroit 31, Mich.
Doerr Electric Corp., 510 No. Fourth Ave., Cedarburg, Wisc.
Dole Valve Co., The, 1933 Carroll Ave., Chicago, Ill.
Domestic Mfg. Co., 201 Westlake, No., Seattle 9, Wash.
Dominion Chemical Co., Inc., 11 W. 42d St., New York, N. Y.
Dongan Electric Mfg. Co., 2987 Franklin St., Detroit 7, Mich.
Dornback Furnace & Fdry. Co., 724 E. 103d St., Cleveland 8, Ohio
Dortsch Stove Works, Inc., Franklin, Tenn.
Dow Chemical Co., Midland, Mich.
Dowagiac Steel Furnace Co., 109 Beeson St., Dowagiac, Mich.
Doyle Vacuum Cleaner Co., 225 Stevens st., S.W., Grand Rapids 2, Mich.
Draco Furnace Co., Inc., Morris Field, Charlotte, N. C.
Dravo Corp., Dravo Bldg., 5th & Liberty Ave., Pittsburgh 22, Pa.
Drexel Mfg. Co., 1223 Federal, Philadelphia, Pa.
Drico Industrial Corp., 559 W. 35th St., New York 1, N. Y.
Ducane Heating Corp., Park Ave., Lincoln Park, N. J.
Drying Systems, Inc., 1800 Foster Ave., Chicago 40, Ill.
Dualtron Co., 322 Perry Highway, Pittsburgh 29, Pa.
Duff, David & Son, 640 Pleasant St., New Bedford, Mass.
Dunham Co., C. A., 400 W. Madison St., Chicago 6, Ill.
Dunkirk Radiator Corp., 85 Middle Rd., Dunkirk, N. Y.
Duo-Therm Div., Motor Wheel Corp., S. Washington at Mt. Hope, Lansing 3, Mich.
Duro Dyne Corp., 800 Third Ave., New Hyde Park, L. I., N. Y.
Dwyer Mfg. Co., F. W., The, 317 So. Western Ave., Chicago 12, Ill.

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Eagle-Picher Co., American Bldg., Cincinnati 1, Ohio
East Coast Co., 141 Milk St., Boston 9, Mass.
Eastern Prods. Co., Tennent Rd., Morganville, N. J.
Eastern Steel Tank Corp., 40th Rd., Flushing, N. Y.
Eastern Tool Co. of Springfield, Mass., 29 Worthington St., Springfield 3, Mass.
Eaton Mfg. Co., 739 E. 140th St., Cleveland 10, Ohio
Eaton Metal Products Corp., 1301 Willis Ave., Omaha, Nebr.
Eckhart Mfg. Co., Inc., 931 Lehigh Ave., Union, N. J.
Eclilpse Fuel Eng. Co., 1100 Buchanan St., Rockford, Ill.
Economo Products Co., 17 State St., New York 4, N. Y.
Economic Steel Rack Co., 25 Garvey St., Everett, Mass.
Economy Lubricating Co., 6 Temple St., Charlestown 29, Mass.
Economy Pumps, Inc., 19th & Lehigh, Philadelphia 32, Pa.
Eddington Metal Specialty Co., Bristol Pike, Eddington, Pa.
Eds-Wil Eng., 2816 No. Washteman, Chicago 47, Ill.
Edward Valves, Inc., 1200 W. 145th St., E. Chicago, Ind.
Eddy Stoker Corp., 4711 W. North Ave., Chicago 39, Ill.
Electric Furnace Mfg., Inc., 4th and Furnace Sts., Emmaus, Pa.
Electric Hose & Rubber, 12th & Lure Sts., Wilmington, Del.
Electric Motor Development Co., Wickliffe, Ohio
Electric Motors Service, 6133 Market St., Philadelphia 39, Pa.
Electrical Components Co., 600 So. 11th St., Newark 3, N. J.
Electriglas Corp., New Bridge Rd., Bergenfield, N. J.
Electro Machines, Inc., Cedarburg, Wisc.
Electro-Therm, Inc., 931 Selim Rd., Silver Spring, Md.

Electro-Watt, Inc., Aurora at Mercer, Seattle 1, Wash.
Electro-Watt Industries, Inc., 3501 Portland Rd., Salem, Ore.
Electrol Burner Mfg. Co., Inc., 22 Union Ave., Rutherford, N. J.
Ellcon Co., 30 Church St., New York 7, N. Y.
Ellison Draft Gauge Co., 548 W. Monroe St., Chicago C, Ill.
Elmira Steel Co., Chemical Div., 185 Montague St., Brooklyn 2, N. Y.
Emerson Electric Mfg. Co., The, 8100 Florissant Ave., St. Louis 21, Mo.
Empire Chemical Products Co., 10 Longworth St., Newark, N. J.
Engel Sheet Metal Equipment, Inc., 3001 N. Union Blvd., St. Louis, Mo.
Engineer Co., 75 West St., New York 6, N. Y.
Enico Products, 16573 Littlefied Ave., Detroit 35, Mich.
Enterprise Engine Machinery, Sub. of General Metals Corp., 18th & Florida Sts., San Francisco 10, Calif.
Enterprise Heat & Power Co., 1401 W. North Ave., Chicago 22, Ill.
Equi-Dyne Co., 5729 W. Ohio St., Chicago 44, Ill.
Erie City Iron Works, 1422 East Ave., Erie, Pa.
Erie Meter Systems, Inc., 1602 Wagner Ave., Erie 6, Pa.
Esso Standard Oil Co., 15 W. 51st St., New York 19, N. Y.
Estate-Heatrola Div., Noma Electric Corp. of New York, Hamilton, Ohio.
Ernst Water Column & Gauge Co., Livingston, N. J.
Evans Products, Plymouth, Mich.
Evis Manufacturing Co., 40 Boardman Pl., San Francisco, Calif.
Everhot All-Copper, Inc., 51 Albion St., Boston 18, Mass.
Ever-tite Coupling Co., Inc., 254 W. 54 St., New York 19, N. Y.
Ewbank Co., 500 Pennsylvania Ave., Matamoras, Pa.
Ex Cel Co., 129 So. Front St., Dowagiac, Mich.
Excell Heating & Air Conditioning Co., 3715 W. Belmont Ave., Chicago 18, Ill.
Excelsior Steel Furnace Co., 118 So. Clinton St., Chicago 6, Ill.

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Faber Eng. Co., Amber & Westmoreland Sts., Philadelphia, Pa.
Fageol Heat Machine Co., 5725 Mt. Elliott Ave., Detroit 11, Mich.
Fairchester Oil Co., Inc., 84 So. Water St., Port Chester, N. Y.
Fairfield Oil Heating Co., Inc., 20 Bridge St., Greenwich, Conn.
Falcon Eqpt. Co., 13th St., New Brighton, Pa.
Falsington Mfg. Co., Falsington, Pa.
Falz Mfg., 1930 St. Anthony Ave., St. Paul 4, Minn.
Fano-Flame Oil Burner Co., 3323 Olive St., Huntington Park, Calif.
Fargo Foundry Co., Inc., 92 No. P. Ave., Fargo, N. D.
Farquhar Furnace Co., 230 Owens Ave., Wilmington, Ohio
Farrar & Trefts, Inc., 20 Milburn St., Buffalo 12, N. Y.
Farrell Mfg. Co., Cass St. & Bissell, Joliet, Ill.
Fasco Industries, Inc., 255 No. Union St., Rochester 2, N. Y.
Faultless Oil Burner Co., 113-29 Farmers Ave., St. Albans 2, L. I., N. Y.
Fedders-Quigan Corp., 57 Tonawanda St., Buffalo, N. Y.
Federal Boiler Co., Inc., Granite & West Sts., Midland Park, N. J.
Federal Engineers, Inc., 29 Massasoit Ave., Barrington, R. I.
Federal Oil Burner Co., Inc., 3620 Walnut St., Philadelphia 4, Pa.
Felter Co., John, 1309 Ashland, Houston, Tex.
Field Control Div., H. D. Conkey & Co., Mendota, Ill.
Filtrex Co., 122 E. 42 St., New York 22, N. Y.
Fire Proven Products, 25th St. & Sherwood Ave., Baltimore 18, Md.
Firewell Co., Inc., The, 3685 Broadway, Buffalo 25, N. Y.
Fisher Eng. Co., 258 35th St., N.E., Washington, D. C.
Fisher Tank Co., 3d & Booth Sts., Chester, Pa.
Fitzgibbons Boiler Co., Inc., 101 Park Ave., New York 17, N. Y.
Flame-Master Co., The, 3118 Milwaukee Ave., Chicago 8, Ill.
Fleck Co., Haddon Ave. & Line St., Camden, N. J.
Flexible Couplings Mfg. Co., 8145 Dobson Ave., Chicago 19, Ill.
Flexible Tubing Corp., New Whitfield St., Guilford, Conn.
Floral City Heater Co., 402 So. Monroe St., Monroe, Mich.
Florence Stove Co., 205 School St., Gardner, Mass.
Fluid Heat Div., Anchor Post Products, Inc., 6500 Eastern Ave., Baltimore 24, Md.
Fluid Systems, Inc., 1881 Dixwell Ave., New Haven, Conn.
Ford, Henry, 3511 No. 13th St., Philadelphia 40, Pa.
Ford Div., Ford Motor Co., P. O. Box 658, Dearborn, Mich.
Forest Cities Fdrys. Co., 2500 W. 27th St., Cleveland 13, Ohio
Fostoria Pressed Steel Corp., Fostoria, O.
Chris Fox, Inc., 19 Bowhill Ave., Trenton 10, N. J.
Fram Corp., 55 Pawtucket Ave., Providence 16, R. I.
Frigidaire Div., General Motors Corp., 300 Taylor St., Dayton 1, Ohio
Friez Instrument Div., Bendix Aviation Corp., 1400 Taylor Ave., Baltimore 4, Md.
Front Rank Mfg. Co., 2500 Ohio Ave., St. Louis 4, Mo.
Fruehauf Trailer Co., 10940 Harper Ave., Detroit 32, Mich.
Fuel Econ-O-Mizer Co., 1 Washington Ave., Providence 5, R. I.
Fuel Reduction Corp., 220 N. Ada St., Chicago 7, Ill.
Fuel Watchman, Inc., 37 Wall St., New York 5, N. Y.
Fulton Boiler Works, Inc., Box 228, Fulton, N. Y.
Fulton Sylphon Div., Robertshaw-Fulton Controls Co., Knoxville, Tenn.
Furblo Co., Hermansville, Mich.

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Gabriel Boiler & Fabricator Co., 1428 N.W. 14 St., Portland 9, Ore.
Gary Carolina Co., Arlington St., Rocky Mount, N. C.
Gary Steel Products Co., 4400 W. Ninth Ave., Gary, Ind.
Gasoilair Eqpt. Co., 137 Thompson St., New Haven 6, Conn.
Gasoline & Oil Eqpt. Co., 224 Bassett St., New Haven 11, Conn.
Gates Rubber Co., 999 So. Broadway, Denver 17, Colo.
Gem Clay Forming Co., 16th St. & Railroad St., Sebring, Ohio
Gem Giant Oil Burner Co., Inc., Box 186, Westmoreland, N. Y.
Gem Industrial Fuel Oil Burners, Frankfort, Ky.
Gemlen Chemical Co., 4 Midland Ave., E. Paterson, N. J.
General Automatic Products Corp., 2300 Sinclair Lane, Baltimore 13, Md.
General Blower Co., 8610 Ferris Ave., Morton Grove 2, Ill.
General Controls Co., 801 Allen Ave., Glendale 1, Calif.
General Electric Co., 5 Lawrence St., Bloomfield, N. J.
General Electric Co., Ft. Wayne 2, Ind.
General Electric Co., Appliance Control Dept., Morrison, Ill.
General Filters, Inc., 43800 Grand River Ave., Novi, Mich.
General Fittings Co., 123 Georgia Ave., Providence 5, R. I.
General Heating Products Co., 1205 Hamilton St., Philadelphia 23, Pa.
General Machine Co., Inc., Fourth & Furnace Sts., Emmaus, Pa.
GMC Truck & Coach Div., General Motors Corp., 660 So. Blvd., Pontiac 11, Mich.
General Oil Heating Corp., 324 55th St., W. New York 2, N. J.
General Power Plant Corp., 10 St. Paul's Pl., Ossining, N. Y.
General Products Co., Box 616, Fredericksburg, Va.
General Refractories Co., 1520 Locust St., Philadelphia 2, Pa.
General Thriftmaster Products, 1205 Hamilton St., Philadelphia, Pa.
General Utilities Corp., 1520 No. Broad St., Philadelphia 21, Pa.
Gerett Co., M. A., 724 Winnebago, Milwaukee 5, Wisc.
Gerstein & Cooper, Inc., 1 W. Third St., So. Boston 27, Mass.
Gibraltar Corp. of America, Inc., 223 No. Ninth St., Brooklyn 11, N. Y.
Gilbert & Barker Mfg. Co., Cold Springs Ave., W. Springfield, Mass.
Gillen Co., J. L., 12202 Wormer Ave., Detroit 28, Mich.
Glasby, J. P., Mfg. Co., Inc., 1 Montgomery St., Belleview 9, N. J.
Glasfloss Div., The, Tilo Roofing Co., Inc., 155 E. 44th St., New York 17, N. Y.
Glo-Heat Co., 914 Rising Sun Ave., Philadelphia 40, Pa.
Globe Controls Co., 81 Warren St., Newark, N. J.
GMC Truck & Coach Div., Gen. Motors Corp., Pontiac, Mich.
Gold Star Oil Burner Mfg. Co., Inc., 146 Warburton Ave., Yonkers 2, N. Y.
Golden Flame Mfg. Co., 320-322 Line St., Camden 3, N. J.
Goodrich Co., The B. F., Akron, Ohio
Goodrich Oil Burner Mfg. Corp., 106 Whalley Ave., New Haven, Conn.
Goodall Rubber Co., Whitehead Rd., Trenton 4, N. J.
Goodyear Tire & Rubber Co., The, 1144 E. Market St., Akron, Ohio
Gorman-Rupp Co., The, 305 Bowman St., Mansfield, Ohio
Gorton Heating Corp., Cranford, N. J.
Gould Oil Burner Co., 107 Terrace, Boston, Mass.
Grainger, W. W., Inc., 118 S. Oakley Blvd., Chicago 12, Ill.
Granberg Corp., 1308 67th St., Oakland, Calif.
Grand Island Furnace & Supply Co., P. O. Box 508, Grand Island, Nebr.
Grant Mfg. Corp., 825 Communipaw Ave., Jersey City, N. J.
Grant Wilson, Inc., 141 W. Jackson Blvd., Chicago 4, Ill.
Graver Tank & Mfg. Co., Inc., 4809 Tod Ave., E. Chicago, Ind.
Gray & Dudley Co., 2300 Clifton Rd., Nashville, Tenn.

Gray Metal Products, Inc., 30 Carlton St., Rochester 3, N. Y.
Green Colonial Furnace Co., 322 S.W. 3d St., Des Moines 7, Iowa
Green Fire Brick Co., A. P., Mexico, Mo.
Greene & Hodgson, Inc., 31 Commercial St., Providence 5, R. I.
Greene Mfg. Co., A., 3409 Hutchinson St., Philadelphia 40, Pa.
Greenlee Tool Co., 2136 Twelfth St., Rockford, Ill.
Greenwood Eng. Co., Inc., 1023 Ridgley St., Baltimore 30, Md.
Grinnell Co., Inc., 260 W. Exchange, Providence 1, R. I.
Gross-Aire Mfg. Co., 9416 W. Milton Ave., St. Louis 14, Mo.
Guardian Products Corp., 1215 E. Second St., Michigan City, Ind.
Gustin-Bacon Mfg. Co., Tenth & Central Cennial Bldg., Kansas City 6, Mo.

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H. & H. Tube Mfg. Co., 245 No. Forman Ave., Detroit 17, Mich.
Hago Products, 1281 Springfield Ave., Irvington 11, N. J.
Hahn, Arthur, Co., 211 Walnut Ave., Hartford, Conn.
Hall-Neal Furnace Co., 1322 No. Capitol Ave., Indianapolis 7, Ind.
Hallmor, Inc., McMurray Rd., Bridgeville R. D. 2, Pa.
Hammel Oil Burning Eqpt. Co., 20 Stevens St., Providence, R. I.
Hamilton Rubber Mfg. Corp., P. O. Box 361, Trenton 3, N. J.
Hammond Iron Works, 630 Fifth Ave., New York, N. Y.
Handelan Washed Air Co., 4006 Washburn Ave., So., Minneapolis 10, Minn.
Handi Eqpt. Co., 908 Tenth St., Racine, Wisc.
Hano Co., Inc., Phillip, 85 Sargeant St., Holyoke, Mass.
Hannay & Son, Inc., Clifford B., Westerlo, N. Y.
Hansen Tool & Die Co., 1531 So. First St., Milwaukee 4, Wisc.
Hanson-Gates Mfg. Co., Inc., 8 Prescott St., Reading, Mass.
Hapman-Dutton Co., 630 Gibson St., Kalamazoo, Mich.
Harbinson & Co., Inc., J. K., 70 W. Chippewa St., Buffalo 2, N. Y.
Harbison-Walker Refractories Co., 1800 Farmers Bank Bldg., Pittsburgh 22, Pa.
Hardinge Oil Burner & Mfg. Co., 1770 Berteau Ave., Chicago 13, Ill.
Harlon & Hollingsworth Tank Corp., 225 S. 15th St., Philadelphia, Pa.
Harner Boiler Corp., 331 Sutter Ave., Brooklyn 12, N. Y.
Harsch & Co., H., 230 Tuscan Rd., Maplewood, N. J.
Hart & Cooley Mfg. Co., 500 E. 8th St., Holland, Mich.
Hart Heat Div., Avery Farm Machinery Co., Foot of Junction St., Peoria 2, Ill.
Harvey, Chester T., 130 Cheyenne Trail, Portsmouth, Va.
Harvey, Inc., Sid, 100 Mineola Ave., Valley Stream, N. Y.
Harvey-Whipple, Inc., 2155 Columbus Ave., Springfield, Mass.
Hasko Utilities Co., 879 Tenth Ave., New York, N. Y.
Hastings Air Conditioning Co., Inc., 108 So. Colorado Ave., Hastings, Nebr.
Hastings Instrument Co., Inc., Hampton, Va.
Hauck Mfg. Co., Brooklyn 15, N. Y.
Hayden Heater Co., Inc., Goldsborough St., Easton, Md.
Haydon Products Corp., 1801 Eighth Ave., Brooklyn 15, N. Y.
Hays Corp., E. Eighth St., Michigan City 7, Ind.
Hayward Mfg. Co., 505 Court St., Brooklyn 31, N. Y.
Hayward Oil Burner Corp., 86 Kirkland St., Cambridge 38, Mass.
Healy-Ruff Co., 2255 University Ave., St. Paul 14, Minn.
Heat, Inc., 460 W. Larned St., Detroit 26, Mich.
Heat Controller, Inc., Manitou Beach, Mich.
Heat Timer, Inc., 657 Broadway, New York 12, N. Y.
Heatcraft Co., 419 W. Main St., Louisville 2, Ky.
Heating Eqpt. Mfg. Co., 600 Indiana St., San Francisco, Calif.
Heating Specialties, Inc., Knecht Ave., Baltimore 29, Md.
Heatlox Furnaces, Inc., 1725 Jefferson St., Tacoma, Wash.
Heet-Master Products Co., 2251 Kirk Ave., Baltimore 18, Md.
Heil Co., The, 3000 W. Montana St., Milwaukee 1, Wisc.
Helman Chimney Sales Co., J. H., National Bank Bldg., Fredericksburg, Va.
Henry Furnace Co., The, Medina, Ohio
Henwood Associates, Roy M., 149 Cedar St., New York 6, N. Y.
Henszey Co., Watertown, Wisc.
Herco Oil Burner Corp., 131-5 Locust St., Lancaster, Pa.
Hercules Chemical Co., Inc., 332 Canal St., New York 13, N. Y.
Hershey Machine & Fdry. Co., Motor Stokor Div., Manheim, Pa.
Hershner Mfg. Co., 1024 So. Edgar St., York, Pa.
Hess Co., 1855 So. 54th Ave., Chicago 50, Ill.
Hewitt-Robins, Inc., 24 Kensington Ave., Buffalo 5, N. Y.
Hidy Co., Elmo D., 6919 Montgomery Rd., Cincinnati 36, Ohio
Hillier's Oil Heating Co., Lodi, Wisc.
Hoff Mfg., Johnson Rd., Bethany, Conn.
Hoffberger Co., Monument & Forrest Sts., Baltimore 2, Md.
Hoffman Specialty Mfg. Corp., 1001 York St., Indianapolis 7, Ind.
Holan Co., J. H., 4100 W. 150th St., Cleveland 11, Ohio
Hold-Tite Valve Mfg. Co., 852 Rogers Ave., Brooklyn 26, N. Y.
Holland Furnace Co., Holland, Mich.
Holly Mfg. Co., 875 So. Arryoa Pkwy, Pasadena, Calif.
Holsclaw Bros., Inc., 408 No. Willow Rd., Evansville, Ind.
Home Furnace Co., 280 E. Sixth St., Holland, Mich.
Home Furnace & Fdry. Co., Coldwater, Mich.
HomEase Products Div., Inc., 52 Iowa Ave., Paterson, N. J.
Homestead Valve Mfg. Co., P. O. Box 348, Coraopolis, Pa.
Hoover Co., The, Kingston—Colney Div., 68 Brook Ave., No. Plainfield, N. J.
Hopkins Volcanic Specialties, Inc., 1094 No. Union Ave., Alliance, Ohio
Howell Eng. Corp., Box 111, Oregon, Ill.
Hotstream Heater Co., 6927 Quincy Ave., Cleveland, O.
Hupp Corp., 1250 W. 76th St., Cleveland 2, Ohio
Huss Oil Burner Accessories Corp., Delavan Ave. & Beech St., E. Port Chester, Conn.
Hydraline Products Div., Borg-Warner Corp., 18538 Mack Ave., Detroit 36, Mich.
Hydrovalve Co., 1319 Utica Ave., Brooklyn 3, N. Y.
Hyle Oil Burner Co., Frederick & Dutton, Catonsville, Md.
Hy-Lo Burner Co., Inc., Eddington, Pa.
Hyzer & Lewellen, Southampton, Pa.

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Illinois Iron & Bolt Co., Freeman Heating Div., Carpentersville, Ill.
Illinois Testing Laboratories, 420 No. LaSalle St., Chicago 10, Ill.
Imperial Brass Mfg. Co., The, 1200 W. Harrison St., Chicago 7, Ill.
Ingersoll Products Div., Borg-Warner Corp., 760 E. Vine St., Kalamazoo, Mich.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Ingersoll Steel Div., 310 So. Michigan Ave., Chicago 4, Ill.
Independent Register Co., 3747 E. 93d St., Cleveland 5, Ohio
Inland Steel Products Co., Box 393, Milwaukee 1, Wisc.
Industrial Supply, Inc., 246 Ontario St., Cohoes, N. Y.
Instrument Laboratory, Inc., 934 Elliott Ave., W., Seattle, Wash.
Insulating Castable Corp., 130 W. Pleasant, River Rouge 18, Mich.
Insulating Refractories Co., P. O. Box 322, San Rafael, Calif.
Insulation & Refractories Co., 12 W. Main St., Williamson, N. Y.
International Boiler Works Co., 20 Birch St., E. Stroudsburg, Pa.
International Heater Co., 101 Park Ave., Utica, N. Y.
International Metal Hose Co., Div. of Gabriel Co., 1523 E. 45th St., Cleveland 3, Ohio
International Oil Burner Co., 3800 Park Ave., St. Louis 10, Mo.
International Register Co., 2620 W. Washington Blvd., Chicago 12, Ill.
International Sales Co., 2045 Evans Ave., San Francisco 24, Calif.
Iron Fireman Mfg. Co., 3170 W. 106th St., Cleveland 11, Ohio
Iron-Hide Sales Co., Dock St., Matawan, N. J.

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Jackson & Church Co., 321 No. Hamilton, Saginaw 1, Mich.
Jacuzzi Bros., Inc., 5327 Jacuzzi Ave., Richmond, Calif.
Jaden Mfg. Co., Inc., 1601 W. Second St., Hastings, Nebr.
Jan-Air, Inc., Richmond, Ill.
Jefferson Electric Co., 25th & Madison, Bellwood, Ill.
Jenkins Eng. Co., 518 Virginia St., Seattle 1, Wash.
Jettronaire, Inc., 1100 E. Warrington Ave., Pittsburgh 10, Pa.
Johns-Manville, Inc., 22 E. 40th St., New York 16, N. Y.
Johnson Corp., The, 805 Wood St., Three Rivers, Mich.
Johnson Heater Corp., 1 Winnisimmet St., Chelsea 50, Mass.
Johnson Co., S. T., 940 Arlington St., Oakland 8, Calif.
Johnson Service Co., 507 E. Michigan St., Milwaukee, Wisc.
Johnston Bros., Inc., Third & Pine Sts., Ferrysburg, Mich.
Jordon Eng. Co., Hartford, Wisc.
Jungers Stove & Range Co., Grafton, Wisc.

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Kalamazoo Stove & Furnace Co., Kalamazoo, Mich.
Kalmide Chemicals, Inc., 17 E. 42d St., New York 17, N. Y.

Kam Water Heater Mfg. Co., Inc., 239 Alabama Ave., Brooklyn 7, N. Y.
Karr Range Co., Seventh & Harrison St., Belleville, Ill.
Karyall Body, Inc., 8221 Clinton Rd., Cleveland 9, Ohio
Kauffman Air Conditioning Corp., 4505 Oliver St., St. Louis 8, Mo.
Kaustine Co., Inc., 1953 Jackson, Perry, N. Y.
Keith Furnace Co., 2601 Dean St., Des Moines, Iowa
Keil's, 1000 E. 12th St., Wilmington, Del.
Kemix Laboratories, W. Springfield, Pa.
Kenite Laboratory, 23 Samson Ave., Madison, N. J.
Kennard Corp., 1819 S. Hanley Rd., St. Louis 17, Mo.
Kennedy Tank & Mfg. Co., Inc., 833 S. Summer Ave., Indianapolis 27, Ind.
Kent Co., Inc., The, 348 Canal St., Rome, N. Y.
Kewanee-Ross Corp., 101 Franklin St., Kewanee, Ill.
Key Co., Box 494, E. St. Louis, Ill.
K-G Mfg. Corp., Box 67, Center Valley, Pa.
King Boiler & Furnace Co., Shade Gap, Pa.
King Chemical Co., 31 New Haven R.R. St., Mt. Vernon, N. Y.
King Eng. Co., Box 440, Ann Arbor, Mich.
Kinsley Burner & Machine Co., 397 Harris Ave., Providence, R. I.
Kisco Boiler & Eng. Co., 2414 DeKalb St., St. Louis 4, Mo.
Kleen-Heet, Inc., 1823 Carroll Ave., Chicago 12, Ill.
Kleer-Kleen Mfg. Co., 140 Orchard Ave., Hayward, Calif.
Kleam Automotive Products Co., 1718 N. Damen Ave., Chicago 47, Ill.
Kleenwit Chemical Co., Corner Golden & Mystic Ave., Medford, Mass.
Klippel Valves, Inc., 1075 Lincoln Ave., Hamilton, Ohio
Knox Stove Works, Inc., P. O. Box 1031, 2016 Ailor Ave., Knoxville 7, Tenn.
Kohler Co., Kohler, Wisc.
Kolb Refractories Co., Meadow & Jackson Sts., Philadelphia 48, Pa.
Kol-Master Corp., First & Madison, Oregon, Ill.
Kopp Nozzle Products, 36 Newark Way, Maplewood, N. J.
Ko-Z-Aire, Inc., 401 Coolbaugh St., Red Oak, Iowa
Kraissl Co., The, 229 Williams Ave., Hackensack, N. J.
Kramer Trenton Co., Olden & Breunig, Trenton, N. J.
Kraus, Charles E., Mfg. Co., 1225 8 St., Louisville 2, Ky.
Kresky Mfg. Co., Inc., Second & "H" Sts., Petaluma, Calif.
Kresno-Stamm Co., Inc., 115 W. Palisades Blvd., Palisades Park, N. J.
Krieg, Victor J., Inc., 611 Broadway, New York 12, N. Y.
Kritzer Radiant Coils, Inc., 2901 Lawrence Ave., Chicago 25, Ill.
Krueger-Sentry Gauge Co., Inc., 1056 W. Mason St., Sta. A, Green Bay, Wisc.
Kunkle Valve Co., 119-121 S. Clinton St., Fort Wayne 2, Ind.

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Laclede-Christy Products Co., 812 Arcade Bldg., St. Louis 1, Mo.
Laco Oil Burner Co., Inc., Griswold, Iowa
Lake Chemical Co., 3052 W. Carroll St., Chicago 12, Ill.
Lammert & Mann Co., 215 N. Wood St., Chicago 12, Ill.
Lamson Oil Corp., 355 Allen Ave., Providence 5, R. I.
Lancaster Heat Transfer Co., Inc., 123 DeKalb Ave., Brooklyn 1, N. Y.
Landow Bros., 145 Quinnipiac St., Wallingford, Conn.
LaSalle Oil Burner Co., Inc., 3615 Stone Way, Seattle 3, Wash.
Lattner Mfg. Co., P. M., P. O. Box 1710, Cedar Rapids, Iowa
Lau Blower Co., 2001 Home Ave., Dayton 7, Ohio
Lawler Automatic Controls, Inc., 453 N. MacQuesten Pkwy, Mt. Vernon, N. Y.
Lawson Mfg. Co., 300 N. Lexington Ave., Pittsburgh 8, Pa.
Leahy Mfg. Co., 1804 E. 8th St., Los Angeles 21, Calif.
Lee Corp., 1001 Tatnall St., Wilmington, Del.
Leeson Air Conditioning Corp., 14631 Meyers Rd., Detroit 27, Mich.
Leffel & Co., The James, 426 East St., Springfield, Ohio
Leggitt Co., S. H., 302 E. Michigan Ave., Marshall, Mich.
Lepick Heater Co., 1742 Fourth Ave., So., Seattle 4, Wash.
Leisur-Maid Mfg. Corp., 338 Wealthy St., S.W., Grand Rapids 3, Mich.
Lennox Furnace Co., 200 So. 12th Ave., Marshalltown, Iowa
Lewis & Co., Inc., Joseph E., 1307 Carroll St., Baltimore 30, Md.
Libert Machine Co., 324 No. Roosevelt, Green Bay, Wisc.
Lientz & Co., B. P., 210 W. Eighth St., P. O. Box 2275, Kansas City 42, Mo.
Lifetime Mfg. Co., Pemberville, Ohio
Lima Register Co., The, 651 No. Baxter St., Lima, Ohio
Lincoln Brass Works, Inc., 2051—12th St., Detroit 16, Mich.
Linden Metal Specialty Co., 217 Van Buren St., Anoka, Minn.
Lindmere Tube Co., 1500 E. 219th St., Cleveland 17, Ohio
Lindy Heaters, Inc., 2370 Hoffman, Bronx, N. Y.
Lipman Refrigeration Div., Yates-American Machine Co., Beloit, Wisc.
Liquideth Indicators, Inc. 43-22 10th St., Long Island City 1, N. Y.
Liquidometer Corp., 41-03 36th St., Long Island City 1, N. Y.
Little Burner Co., Inc., H. C., Woodland & Dubois, San Rafael, Calif.
Livingston, Inc., Marshall, Mich.
Lockformer Co., The, 4615 W. Roosevelt Rd., Chicago 50, Ill.
Loline Steel Boiler Co., 228 So. Penn St., Allentown, Pa.
Lonergan Mfg. Co., 704 N. Clark St., Albion, Mich.
Long Mfg. Co., Inc., Tarboro, N. C.
Lookout Boiler & Mfg. Co., Manufacturers Rd. & Compress St., Chattanooga 1, Tenn.
Lord Mfg. Co., 1635 W. 12th St., Erie, Pa.
Louthan Mfg. Co., The, 2000 Harvey Ave., E. Liverpool, Ohio
Louvra Corp., The, 1010 Jeanette Ave., Union, N. J.
Lovejoy Flexible Coupling Co., 4812 W. Lake St., Chicago 44, Ill.
Loxaire Corp., 1725 Jefferson Ave., Tacoma, Wash.
Lundt, Inc., Ernest, Little Falls, N. J.
Luty Furnace Mfg. Co., 8747 Lyndon Ave., Detroit 21, Mich.
Lycoming-Spencer Div., Avco Mfg. Corp., 652 Oliver St., Williamsport, Pa.
Lynch Co., Inc., The, 6000 N.E. Union Ave., Portland 11, Oreg.
Lynn Products Co., 17 Willow St., Lynn, Mass.

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Macleon Co., Bogen St., Cincinnati 22, Ohio
MacLeod & Henry Co., Inc., 357 First St., Troy, N. Y.
McCabe-Powers Auto Body Co., 5900 No. Broadway, St. Louis 15, Mo.
McCorckle Co., D. H., Sixth & Bancroft Way, Berkeley, Calif.
McDonald Mfg. Co., A. Y., Dubuque, Iowa
McDonnell & Miller, Inc., 3500 No. Spaulding Ave., Chicago 18, Ill.
McGillis Service Eng., 1554 Main St., Brockton, Mass.
McKee Air Conditioning Co., 3861 Fremont Ave., No., Minneapolis 12, Minn.
McLarty Systems, 2600 Dickman Rd., Battle Creek, Mich.
McQuay, Inc., 1601 Broadway St., N.E., Minneapolis, Minn.
McPherson Furnace & Supply Co., P. O. Box 7706, Portland 12, Ore.
McRay Products of Calif., 6808 Melrose Ave., Los Angeles 38, Calif.

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Mack Motor Trucks Corp., 350 Fifth Ave., New York 1, N. Y.
Madden Brass Products Co., 1111 No. Franklin St., Chicago 10, Ill.
Madsen Service, 3549 Nicollet Ave., Minneapolis 8, Minn.
Magic Chef, Inc., 1641 So. Kingshighway Blvd., St. Louis 10, Mo.
Magnaflow Pump Co., 45 Actor Pl., New York 3, N. Y.
Magnetrol, Inc., 2110 So. Marshall Blvd., Chicago 23, Ill.
Magnex Corp., 90-28 Van Wyck Express Way, Jamaica 18, N. Y.
Maid-O-Mist, Inc., 3217 No. Pulaski Rd., Chicago 41, Ill.
Majestic Co., Inc., The, Erie St., Huntington, Ind.
Major Oil Burner Co., 2123 No. Broad St., Philadelphia 22, Pa.
Makomb Steel Products Co., Div. of Globe American Corp., Macomb, Ill.
Malleable Iron Fittings Co., Branford, Conn.
Malleable Steel Range Mfg. Corp., Cherry St., South Bend 21, Ind.
Manning & Lewis Eng. Co., 28-42 Ogden St., Newark 4, N. J.
Manville Boiler Co., Inc., Stiger St., Hackettstown, N. J.
Marathon Electric Mfg. Corp., Cherry & Randolph Sts., Wausau, Wisc.
Marco Industries, Inc., 786 Terrace Blvd., Depew, N. Y.
MarCoil Heater Co., 200-202 Paterson Plank Rd., Union City, N. J.
Marietta Metal Products Corp., 540 No. 63d St., Philadelphia, Pa.
Marine Electrolysis Eliminator Co., 617 Dearborn St., Seattle, Wash.
Marlo Coil Co., 6135 Manchester Ave., St. Louis 10, Mo.
Marlow Pumps, Box 566, Ridgewood, N. J.
Marnis Oil Co., Inc., 255 Exterior St., New York 5, N. Y.
Marquart Mfg. Co., 1241 High St., Oakland, Calif.
Marsh Corp., Jas. P., 3501 Howard St., Skokie, Ill.
Martin Fan & Blower Co., 4634 W. 21st Pl., Chicago 50, Ill.
Martin Tube Benders, W. H., P. O. Box 692, Owensboro, Ky.
Marvel Eng. Co., 625 W. Jackson Blvd., Chicago 6, Ill.

Mason Machine Co., Inc., 817 E. King St., York, Pa.
Master Appliance Mfg. Co., 532 4th St., Racine, Wisc.
Master Automatic Oil Burner Co., Iowa & Division Sts., Kansas City 3, Kan.
Master-craft Supply Co., 29 W. Broad St., Haverstraw, N. Y.
Master Equipment Corp., P. O. Box 55, Dayton 1, Ohio
Maxon Premix Burner Co., 201 E. 18th St., Muncie, Ind.
May Fuel Oil Corp., 1500 Russell St., Baltimore 30, Md.
Mayflower Air Conditioners, Inc., Duluth Ave. & E. Seventh St., St. Paul 6, Minn.
Mayne Products Co., 324 Harries Bldg., Dayton 2, Ohio
Mead Cornell & Co., P. O. Box 2683, 16912 Lakewood Heights Blvd., Cleveland 7, Ohio
Mel-Gauge Co., Crest Ave. & Foxon Rd., E. Haven, Conn.
Mears-Kane-Ofeldt, Inc., Div. of S. T. Johnson Co., P. O. Box 223, Bridgeport, Pa.
Measurements Methods Co., 845 Chicago Ave., Evanston, Ill.
Mechanical Products Co., 1723 First Ave., So., Seattle 4, Wash.
Mel Gauge Co., The, Box 126, Sta. A., New Haven, Conn.
Mercoid Corp., 4201 Belmont Ave., Chicago 41, Ill.
Mercury Supply Co., 410 Fairview, Elmhurst, Ill.
Meriam Instrument Co., 10920 Madison Ave., Cleveland 2, Ohio
Merit Oil Heating Corp., 526 No. High St., Mt. Vernon, N. Y.
Messer Co., Inc., The, 629 Central Ave., Newark 7, N. J.
Metal Hose & Tubing Co., Dover, N. J.
Metallizing Co. of America, 3520 W. Carroll Ave., Chicago 24, Ill.
Metro Oil Burner Mfg. Co., Inc., Glendale Village, Easthampton, Mass.
Metromatic Oil Burner Co., 21 Henderson St., Everett 49, Mass.
Mettler Co., Inc., The, 4366 Worth St., Los Angeles 63, Calif.
Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.
Meyer Furnace Co., The, 1300 So. Washington, Peoria 2, Ill.
Michigan Burner Co., 18392 Fitzpatrick Ave., Detroit 28, Mich.
Michigan Tank & Heater Corp., 14247 Treman Ave., Dearborn, Mich.
Midco Register Corp., 1059 Grand Ave., St. Paul 5, Minn.
Middleton & Meads Co., Inc., 11 E. Lee St., Baltimore 2, Md.
Miller Co., The, 99 Center St., Meriden, Conn.
Miller-Harris Instrument Co., 601 E. Ogden, Milwaukee, Wisc.
Miller Product Co., 3046 Cedar Rd., Lansing, Mich.
Milwaukee Electric Tool Corp., 5316 W. State St., Milwaukee 7, Wisc.
Milwaukee Valve Co., The, 2375 So. Burrell St., Milwaukee 7, Wisc.
Minit Spray Corp., Merchandise Mart Plaza, Chicago 54, Ill.
Mineapolis-Honeywell Regulator Co., 2753 Fourth Ave. So., Minneapolis 8, Minn.
Mission Appliance Corp., 12611 So. Greenshaw, Hawthorne, Calif.
Modern Die & Machine Co., 166 Pleasant St., Boston 25, Mass.
Modern Heat, Inc., 4415 Chestnut St., Philadelphia 4, Pa.
Modine Mfg. Co., 1500 Dekoven Ave., Racine, Wisc.
Monarch Mfg. Works, Inc., 2501 E. Ontario St., Philadelphia 34, Pa.
Monarch Range Co., 715 No. Spring St., Beaver Dam, Wisc.
Monogram Products Co., Inc., 731 No. 35th St., Philadelphia 4, Pa.
Monsanto Chemical Co., St. Louis 4, Mo.
Montag Stove & Furnace Works, 2011 No. Columbia Blvd., Portland 17, Ore.
Moore Business Forms, 900 Buffalo Ave., Niagara Falls, N. Y.
Morris Couplings & Clamp Co., 46 Duncan Ave., Elwood City, Pa.
Morrison Bros., Dubuque, Iowa
Morheat Corp., 700 E. Kalamazoo St., Lansing 12, Mich.
Morrison Bros. Co., Dubuque, Iowa
Morrison Steel Products, Inc., 601 Amherst St., Buffalo 7, N. Y.
Morse-Smith-Morse Co., 165 Dexter Ave., Watertown 72, Mass.
Motor Wheel Corp., Lansing 3, Mich.
Mt. Hawley Mfg. Co., Mt. Hawley Airport, Peoria 4, Ill.
Mueller Co., 512 W. Cerro Gordo, Decatur, Ill.
Mueller Furnace Co., L. J., 2005 W. Oklahoma Ave., Milwaukee 15, Wisc.
Mueller Steam Specialty Co., Inc., 40-20 22d St., Long Island City 1, N. Y.
Muench Laboratories, Inc., 4555 Delmar Blvd., St. Louis 8, Mo.
Mulkey Co., J. F., P. O. Box 216, Bedford, Detroit 10, Mich.
Multiplex Mfg. Co., Berwick, Pa.
Mund Boilers, Inc., 1600 No. Indiana St., Los Angeles 63, Calif.

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National Aluminate Corp., 6216 W. 66th Pl., Chicago 38, Ill.
National Airoil Burner Co., Inc., 1284 E. Sedgley Ave., Philadelphia 34, Pa.
National Boiler Protector Co., 928 Reibold Bldg., Dayton 2, Ohio
National Fuel Conservation Co., Inc., 257 Battle Ave., White Plains, N. Y.
National Grille & Register Co., 3167 E. 80th St., Cleveland 4, Ohio
National Heater Co., Inc., 2182 Cleora Ave., St. Paul 4, Minn.
National Home Eqpt. Co., 50 Church St., New York 7, N. Y.
National Modualtion Co., 2720 N. Hy. 61, St. Paul 9, Minn.
National Oil Corp., 3d & Maury Sts., Richmond, Va.
National Oil Burner Co., Inc., 614 Bergen St., Brooklyn 17, N. Y.
National Radiator Co., The, 221 Central Ave., Johnstown, Pa.
National Steam Pump Co., 701 W. Johnson, Upper Sandusky, Ohio
National Steel Construction Co., 301 Water St., Logansport, Ind.
National Steel Construction Co., 500 Myrtle St., Seattle 8, Wash.
National Super Service Co., 1946 No. 13th St., Toledo 2, Ohio
National Visa-Clean Co., Inc., 5201 Roland Ave., Baltimore 10, Md.
Neptune Meter Co., 50 W. 50th St., New York 20, N. Y.
Nesbitt, Inc., John J., State Rd. & Rhawn St., Philadelphia 36, Pa.
Nesco, Inc., 201 No. Michigan Ave., Chicago, Ill.
New-Aire Blower Co., Inc., 25245 John R St., Royal Oak, Mich.
Newark Controls Co., 15 Ward St., Bloomfield, N. J.
New England Carbide Tool Co., Inc., 60 Brookline St., Cambridge, Mass.
New York Air Valve Corp., 1850 Atlantic Ave., Brooklyn 33, N. Y.
New York Blower Co., 3155 Shields Ave., Chicago 16, Ill.
New Yorker Steel Boiler, Inc., Route 309—Bethlehem Pike, Colmar, Pa.
Niagara Furnace Div., Forest City Foundries Co., 2500 W. 27th St., Cleveland 13, Ohio
Niagara Machine & Tool Work, 637-697 Northland Ave., Buffalo 11, N. Y.
Noble Fuel Oil Burner Co., 1326 No. Ashland, Chicago 22, Ill.
Nock Fire Brick Co., The, 1221-1243 E. 55th St., Cleveland 3, Ohio
Nola Oil Burner Co., 3608 Howard Ave., P. O. Box 1404, New Orleans 5, La.
Norge Div., Borg-Warner Corp., 346 E. South St., Kalamazoo, Mich.
Norman Chemical Co., 470 No. Cleveland Ave., St. Paul 4, Minn.
Norman Products Co., 1150 Chesapeake Ave., Columbus 8, Ohio
Norse Boiler Co., Inc., Stelton Rd., New Market, N. J.
North American Mfg. Co., 4455 E. 71st St., Cleveland 5, Ohio
Northern Controlled Heat Co., Inc., 555-7 Factory Sq., Watertown, N. Y.
Northern N. J. Oil Co., 369 Riverside Ave., Newark, N. J.
Northwest Fdry. & Furnace Co., 2345 E. Gladstone St., Portland 2, Ore.
Northwest Heating, Inc., 1944 No. Lombard, Portland, Ore.
Northwest Metal Products, Inc., 55 Spokane St., Seattle 4, Wash.
Norwalk Air Conditioning Corp., 138 Water St., So. Norwalk, Conn.
Norwalk Tank Co., 10 No. Water St., So. Norwalk, Conn.
Novelty Steam Boiler Works, Inc., Clare & Kloman Sts., Baltimore 30, Md.
Nu-Way Corp., The, 2416 Fourth Ave., Rock Island, Ill.

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Oakland Fdry. Co., Florida & "A" Sts., Belleville, Ill.
O'Brien Steam Specialty Co., Inc., 205 Harrison St., Syracuse 2, N. Y.
O'Halloran Industries, 12305 Turner Ave., Detroit 4, Mich.
Ohio Brass Co., 380 No. Main St., Mansfield, Ohio
Ohio Electric Mfg. Co., 5900 Maurice Ave., Cleveland 4, Ohio
Ohio Valley Hardware & Roofing Co., 300 Fourth Ave., Evansville 2, Ind.
Oneida Heater Co., Inc., 109 No. Warner St., Oneida, N. Y.
Oil-Elec-Tric Co., 1930 University, St. Paul 4, Minn.
Oil Eqpt. Laboratories, Inc., 600 Pearl St., Elizabeth 4, N. J.
Oil Eqpt. Mfg. Co., Inc., 3100 Vermont Ave., Louisville 11, Ky.
Oil Eqpt. Mfg. Corp., 169 Derby Ave., New Haven, Conn.
Oil Heating Economy Corp., E. Boston, Mass.
Olsen Mfg. Co., The C. A., Filbert St., Elyria, Ohio
Olson Co., Arthur A., Broad St., Canfield, Ohio
Ontario Iron Works, 521 Maple Ave., Pulaski, N. Y.
Oran Co., 2222 So. Third St., Columbus 7, Ohio
Oregon Woodcraft Co., P. O. Box 74, 2925 S.E. Allen Ave., Beaverton, Ore.
Oronite Chemical Co., 38 Sansome St., San Francisco 4, Calif.
Orr & Sembower, Inc., Morgantown Rd., Reading, Pa.
Otto Boiler Co., 1905 Clearlake Ave., Springfield, Ill.

OverHead Heaters, Inc., 1612 Book Bldg., Detroit 26, Mich.
Owens-Corning Fiberglas Corp., Wayne Bldg., Toledo 1, Ohio
OXI Corp., Box 485, 600 W. 9th Ave., Gary, Ind.
OXO-Gas Co., 120 E. 30th St., New York 16, N. Y.

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Packard Electric Div., General Motors, Warren, Ohio
Pacific Automatic Heating Co., 1658 20th Ave., Seattle, Wash.
Pacific Oil Co., Durfee Theater Bldg., Fall River, Mass.
Pacific Transducer Corp., 11921 W. Pico Blvd., Los Angeles 64, Calif.
Packard Electric Div., General Motors Corp., Warren, Ohio
Packless Metal Hose, Inc., 31-20 Winthrop Ave., New Rochelle, N. Y.
Paragon Electric Co., 1600 12th St., Two Rivers, Wisc.
Paragon Oil Burner Corp., 75 Bridgewater St., Brooklyn 22, N. Y.
Park Oil Burner, New York Ave. & Absecon Blvd., Atlantic City, N. J.
Parke-Hill Chemical Corp., 57 So. Sixth Ave., Mt. Vernon, N. Y.
Parker Boiler Mfg. Co., Inc., Sid E., 2035 E. 37th St., Los Angeles 11, Calif.
Parker-Kalon Corp., 200 Varick St., New York 14, N. Y.
Parks-Cramer Co., Newport St., Fitchburg, Mass.
Pate Co., The, Walnut & Moore Sts., Darby, Pa.
Patco Mfg. Co., 231 No. Bread St., Philadelphia 6, Pa.
Paterson-Kelly Co., Inc., 108 Warren St., E. Stroudsburg, Pa.
Patten Co., J. V., 550 DeKalb Ave., Sycamore, Ill.
Peabody Eng. Corp., 580 Fifth Ave., New York 36, N. Y.
Pecora Paint Co., Inc., 315 Sedgley Ave., Philadelphia 40, Pa.
Peerless Electric Co., 1401 W. Market St., Warren, Ohio
Peerless Furnace & Fdry., Inc., 1853 Ludlow Ave., Indianapolis, Ind.
Peerless Heater Div., The Eastern Fdry. Co., Spring & Shaeffer Sts., Boyertown, Pa.
Peerless Trailer & Truck Service, Inc., 549 N.E. Third Ave., Portland 14, Ore.
Penn Boiler & Burner Mfg. Corp., Fruitville Rd., Lancaster, Pa.
Penn Brass & Copper Co., W. 20th & Powell Ave., Erie, Pa.
Penn Controls, Inc., Goshen, Ind.
Pennsylvania Furnace & Iron Co., 316 Pine St., Warren, Pa.
Pentwater Machinery Co., 2300 Dwenger, Fort Wayne 4, Ind.
Penn Transformer Corp., Bellefonte, Pa.
Perfection Stove Co., 7609 Platt Ave., Cleveland 4, Ohio
Perfex Corp., 500 W. Oklahoma, Milwaukee, Wisc.
Peterson Co., B. A., 300 W. Railroad, Dowagiac, Mich.
Petro, 3170 W. 106th St., Cleveland 11, Ohio.
Petro Oil Burner Mfg. Co., 23 Commercial St., Malden, Mass.
Philadelphia Valve Co., Aramingo Ave. & E. Tioga St., Philadelphia 34, Pa.
Piatt-Products Corp., 1149 So. Pennsylvania Ave., Lansing 4, Mich.
Plibrico Firebrick Co., 1800 Kingsbury St., Chicago 14, Ill.
Pilgrim Oil Burner Co., 471-5 Windsor St., Hartford, Conn.
Piqua Machine & Mfg. Co., Inc., 441 College St., Piqua, Ohio
Plastic Appliance Co., 5311 Westminster Ave., Philadelphia 31, Pa.
Porcupine Boiler, Kemp Ave., North Adams, Mass.
Portmar Boiler Co., Inc., 193 Seventh St., Brooklyn 15, N. Y.
Power Reels, Inc., 204 W. Utica St., Buffalo 22, N. Y.
Prat-Daniel Corp., 2 Meadow St., So. Norwalk, Conn.
Preferred Utilities Mfg. Co., 1860 Broadway, New York 23, N. Y.
Premier Co., 755 Woodlawn, St. Paul, Minn.
Premier Furnace Co., Dowagiac, Mich.
Prentiss Wabers Products Co., 2600 Second St., No. Wisconsin Rapids, Wisc.
Presbrey Refractories Corp., 600 Somerset Ave., Taunton, Mass.
Preway, Inc., 1430 2nd St., N., Wisconsin Rapids, Wisc.
Price Fireplace Heater & Tank Div., Price National Corp., 5 Austin St., Buffalo, N. Y.
Primor Products, Inc., 3011 W. Beecher Rd., Adrian, Mich.
Pullman Vacuum Cleaner Corp., 33 Allerton St., Boston 19, Mass.
Purolator Products, Inc., 970 New Brunswick Ave., Rahway, N. J.
Pyramid Plastics, Inc., 554 W. Polk St., Chicago 7, Ill.
Pyrene Mfg. Co., 560 Belmont Ave., Newark 8, N. J.

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Quaker City Iron Works, Inc., Aramingo Ave. & Tioga St., Philadelphia 34, Pa.
Quaker Mfg. Co., 223 W. Erie St., Chicago 10, Ill.
Quaker Rubber Corp., Tacony & Comly Sts., Philadelphia 24, Pa.
Queen Stove Works, Inc., 505 Front St., Albert Lea, Minn.
Quickdraft Co., Div. of Hall's Safe Co., Inc., 1150 S. Erie Blvd., Hamilton, Ohio
Quick Furnace Co., 215 Court, Des Moines, Iowa
Quiet Automatic Burner Corp., 33-35 Bloomfield Ave., Newark 4, N. J.
Quiet Heet Mfg. Co., 46 Oliver St., Newark 5, N. J.
Quincy Stove Mfg. Co., 825 So. Front St., Quincy, Ill.

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R.C.S. Tool Sales Co., 200 Maen Ave., Joliet, Ill.
Rackliffe Oil Co., 114 Franklin Sq., New Britain, Conn.
Radex Corp., 2076 Elston Ave., Chicago 14, Ill.
Radiant-Aire Corp., Arthur St., Michigan City, Ind.
Radiant Baseboard Panels, Inc., 900 Main St., New Britain, Conn.
Radiant-Ray Radiation, Inc., 900 W. Main St., New Britain, Conn.
Radiant Utilities Corp., 8817 18th Ave., Brooklyn 14, N. Y.
Radiation Furnace Corp., 230 Bond, Benton Harbor, Mich.
Radiator Specialty Co., 535 Fillmore St., Chicago 24, Ill.
Radiator Specialty Co., 1700 Dowd Rd., Charlotte 1, N. C.
Rajah Co., The, 35 Verona Ave., Newark 4, N. J.
Ramset Fasteners, Inc., Ramset Div., Olin Industries, Inc., 12117 Berea Rd., Cleveland 11, Ohio
Ramtite Corp., Div. S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.
Randall Graphite Bearings, Inc., 1000 So. Greenlawn Ave., Lima, Ohio
Raparound Div., Pilgrim Industries, 15 Boylston Pl., Brookline 46, Mass.
Ray Burner Co., 1301 San Jose Ave., San Francisco 12, Calif.
Rayfield Co., C. L., 2010 So. Halstead St., Chicago 8, Ill.
Reading Brass Co., 37 W. Carlton Rd., Hilldale, Mich.
Reading Tube Corp., 350 5th Ave., New York 1, N. Y.
Ready-Crete Co., 1936 So. Allis, Milwaukee, Wisc.
Rector Well Eqpt. Co., Inc., 2215 Commerce St., Houston 2, Tex.
Red Triangle Heater Co., Wausau, Wisc.
Red Wing Oil Burner Co., 217 Mystic Ave., Medford, Mass.
Redmond Co., Inc., Owosso, Mich.
Reflectal Corp., Sub. of Borg-Warner Corp., 155 E. 44th St., New York 17, N. Y.
Refractory & Insulation Corp., 120 Wall St., New York 5, N. Y.
Refractory Specialty Co., 2200 Washington Ave., Philadelphia 46, Pa.
Refrigeration Appliances, Inc., 923 W. Lake St., Chicago 7, Ill.
Refrigeration Economics Co., Inc., 1231 Tuscarawas St., E., Canton 2, Ohio
Rega Mfg. Co., 99 Mt. Hope Ave., Rochester 20, N. Y.
Reif-Rexoil, Inc., 37 Carroll St., Buffalo 3, N. Y.
Reliance Products Corp., 309 N.E. Davis St., Portland 14, Ore.
Reliance Tubular Products Co., 9112 St. Clair Ave., Cleveland 8, Ohio
Remco, Inc., 1007 Greenmount Ave., Baltimore 2, Md.
Remington Corp., Willey St., Auburn, N. Y.
Remington Arms Co., Barnum Ave., Bridgeport, Conn.
Rempe Co., 340 No. Sacramento Blvd., Chicago 12, Ill.
Renneburg & Sons Co., Edward, 2639 Boston St., Baltimore 24, Md.
Reo Motors, Inc., 1331 So. Washington, Lansing, Mich.
Republic Flow Meters Co., 2240 W. Diversey Pkwy., Chicago 47, Ill.
Republic Products Co., 7420 State Rd., Philadelphia 36, Pa.
Research Products Corp., 1015 E. Washington Ave., Madison 10, Wisc.
Ret-Rac Corp., P. O. Box 136, Flushing, N. Y.
Revcor, 251 Edwards, Carpentersville, Ill.
Revere Copper & Brass, Inc., 230 Park Ave., New York 17, N. Y.
Rex Clay Products Co., The, 14414 Dexter Blvd., Detroit 6, Mich.
Reif-Rexoil, Inc., 37-45 Carroll St., Buffalo 3, N. Y.
Rex Roto Corp., 14400 Dexter Blvd., Detroit 6, Mich.
Rheem Mfg. Co., 7600 So. Kedzie Ave., Chicago 29, Ill.
Rhode Island Fittings Co., 355 Dexter St., Providence, R. I.
Richmond Radiator Co., 16 Pearl St., Metuchen, N. J.
Richmond Radiator Co., New Castle, Del.
Ridge Tool Co., 400 Clark St., Elyria, Ohio
Riley Stoker Co., 9 Neponset St., Worcester, Mass.
Rittling Corp., The, Rand Bldg., Buffalo 3, N. Y.
Roberts Co., S. R., Box 1, Marshall, Mich.
Roberts-Gordon Appliance Corp., 44 Central Ave., Buffalo 6, N. Y.
Robertshaw-Fulton Controls Co., Fulton Sylphon Div., Box 400, Knoxville, Tenn.

Robot Auto Heat Corp., Newfield St., Middletown 2, Conn.
Rochester Mfg. Co., Inc., 8 Rockwood St., Rochester 10, N. Y.
Rock Island Register Co., 2435 Fifth Ave., Rock Island, Ill.
Rockford Brass Works, 700 So. Main, Rockford, Ill.
Rockwell Mfg. Co., 400 No. Lexington Ave., Pittsburgh, Pa.
Rockwell Co., W. S., 200 Eliot St., Fairfield, Conn.
Rome-Turney Radiator Co., Canal St., Rome, N. Y.
Ronci Machine Co., 2 Atlantic Blvd., Centredale 11, R. I.
Roper Corp., George D., 773 Blackhawk Ave., Rockford, Ill.
Rossoe Mfg. Co., 413 Fairview Ave., No. Seattle 9, Wash.
Round Oak Co., Inc., Dowagia, Mich.
Russell Co., F. C., 1100 Chestnut Ave., Cleveland 1, Ohio
Russo, Inc., Thomas D., 75 Bradeen St., Boston 31, Mass.
Rybolt Heater Co., The, 615 Miller St., Ashland, Ohio

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S-K Co., Inc., Admiral Wilson Blvd., Camden, N. J.
S.O.S. Products Co., Inc., 282 Nassau Ave., Brooklyn 22, N. Y.
Safety Blue Flame Oil Burner Mfg. Co., 957 Main St., Stockton, Mass.
Safety Products Co., 975 Main St., Brockton, Mass.
St. Louis Furnace Mfg. Co., 2700 No. 25th St., St. Louis, Mo.
Salina Metal Products, Box 367, Salina, Kans.
Salisbury Tank & Steel Co., 68 Water St., Newburyport, Mass.
Sall Mountain Co., 176 W. Adams St., Chicago 3, Ill.
Sall Mountain Co., Rockdale Lane, Hamilton, Ohio
Sam-Bee Oil Burner Co., 510 E. Victoria St., So. Bend 14, Ind.
Sampsel Time Control, Inc., 600 No. Strong Ave., Spring Valley, Ill.
Sandberg Mfg. Co., 3850 N.W. Yeon Ave., Portland 10, Ore.
Sanders Chemical Co., 2205-09 N. American St., Philadelphia, Pa.
Sarco Co., Inc., Empire State Bldg., New York 1, N. Y.
Schaefer Brush Mfg. Co., 117 W. Walker St., Milwaukee 4, Wisc.
Schaible Co., 1086 Summer St., Cincinnati, Ohio
Schaub Eng. Co., Inc., Fred H., 2110 So. Marshall Blvd., Chicago 23, Ill.
Schecter Bros. Co., Corner Hancock & Huntington Sts., Philadelphia 22, Pa.
Schemenauer Mfg. Co., Holland, Ohio
Schill Mfg. Co., 302 Mansfield St., Crestline, Ohio
Schirmer-Dornbirer Pump Co., 1719 E. 39th St., Cleveland 14, Ohio
Schlitt & Son, Inc., Joseph A., 147-149 Clarke Ave., Jersey City 4, N. J.
Schnacke, Inc., 1101 No. Governor St., Evansville, Ind.
Schoenberger Co., The W. J., 8810 Harvard Ave., Cleveland 5, Ohio
Schurs Oil Burner Co., 8500 Zamore Ave., Los Angeles 1, Calif.
Schwab Safe Co., E. Main St., Lafayette, Ind.
Scott-Newcomb, Inc., 41 Berry Oaks, St. Louis 19, Mo.
Scovill Mfg. Co., 99 Mill St., Waterbury 20, Conn.
Scully Signal Co., Melrose, Mass.
S-Del Co., The, Lincoln Highway, Berwyn, Pa.
Seidelhuber Iron & Brass Works, Inc., 3693 Durvarmsh Ave., Seattle 4, Wash.
Selectrol Eng. Co., 2036 McDonald Ave., Brooklyn 23, N. Y.
Sellers Eng., 4874-76 No. Clark St., Chicago, Ill.
Servel, Inc., 119 No. Morton Ave., Evansville 20, Ind.
Shadyside Fdry., Second & Jefferson, Martins Ferry, Ohio
Shand & Jurs Co., 2630 8th St., Berkeley 10, Calif.
Sharpsville Steel Fabricators, Inc., Sixth & Main Sts., Sharpsville, Pa.
Sheffield Bronze Paint Corp., 17814 Waterloo Rd., Cleveland 9, Ohio
Shell Chemical Corp., 50 W. 50th St., New York, N. Y.
Shepard Heater Co., Inc., 951 Sycamore St., Terre Haute, Ind.
Sherb, Inc., Warren J., 342 Madison Ave., New York 17, N. Y.
Sicard Mfg. Co., 2921 Stevens Ave., Minneapolis 8, Minn.
Siebring Mfg. Co., George, Iowa
Siegler Enamel Range Co., Wilson Ave., Centralia, Ill.
Siemon Mfg. Co., 1819 Holmes St., Kansas City 8, Mo.
Sigwald Eng. Co., 2937 Fourth Ave. So., Minneapolis 8, Minn.
Silent Automatic Products, Timken Silent Automatic Div., Timken-Detroit Axle Co., 209 E. Washington St., Jackson, Mich.
Silent-Flame Mfg. Co., Inc., 80725 Zerega Ave., New York 71, N. Y.
Silent Glow Oil Burner Corp., 850 Windsor St., Hartford 6, Conn.
Silent Sioux Corp., 208-212 W. College Ave., Orange City, Iowa
Silver Heat Oil Burner Co., 1010 So. 60th St., W. Philadelphia 43, Pa.
Simplex Heater Control Co., 897 Laurel St., St. Paul 4, Minn.
Simplex Mfg. Co., 202 No. Main St., Fond du Lac, Wisc.
Simplex Oil Heating Corp., 7901 Oxford Ave., Philadelphia 11, Pa.
Skidmore Corp., P. O. Box 309, St. Joseph, Mich.
Skinner Chuck Co., Edgewood Ave., New Britain, Conn.
Skinner Co., M. B., Sample St., South Bend, Ind.
Skinner Electric Valve Div., 141 Belden Ave., Norwalk, Conn.
Skinner Heating & Ventilating Co., Inc., Div. of St. Louis Blow Pipe & Heater, Inc., 1954 No. Ninth St., St. Louis 6, Mo.
Skuttle Mfg. Co., Milford, Mich.
Slant-Fin Radiator Corp., 5113 Second Ave., Brooklyn 32, N. Y.
Small Motors, Inc., 2076 Elston Ave., Chicago 14, Ill.
Smith, A. O. Corp., 5715 Smithway St., Los Angeles 22, Calif.
Smith, A. O. Corp., 3533 N. 27th St., Milwaukee 1, Wisc.
Smith Co., H. B., The, 57 Main St., Westfield, Mass.
Smith's Heating, Inc., Park Ave., Kinston, N. C.
Smith Twin Tubular Boiler Co., Inc., State Rd. & Cottman St., Philadelphia 35, Pa.
Snyder Co., The, Massillon, Ohio
Sonoco Products Co., Hartsville, S. C.
Sorenson-Vana Corp., 2306 North St., Omaha, Nebr.
E. E. Souther Iron Co., 1952 Kienlen Ave., St. Louis 20, Mo.
Southern Heater Co., 133 W. Palmer, Compton, Calif.
Southern Tank & Mfg. Co., 1501 Haynes Ave., Owensboro, Ky.
Span Brass Mfg. Co., Inc., 400 Wilson St., Otsego, Mich.
Spark Stove Co., Inc., 2619 E. 12th St., Oakland 1, Calif.
Sparkler Mfg. Co., Mundelein, Ill.
Specialty Sheet Metal Mfg. Co., 2425 W. 14 St., Chicago, Ill.
Spencer Thermostat Div., Metals & Controls Corp., 34 Forest St., Attleboro, Mass.
Sprague Electric Co., North Adams, Mass.
Springfield Boiler Co., 1901 E. Capitol Ave., Springfield, Ill.
Square D Co., 4041 No. Richards St., Milwaukee 12, Wisc.
Staffco Eng. Co., 6600 So. Austin Ave., Chicago 38, Ill.
Stahl Metal Products, Inc., 3490 W. 140th St., Cleveland 11, Ohio
Stainless Steel Products Co., 1000 Berry Ave., St. Paul 4, Minn.
Standard Arcoil Corp., 21 Broad St., Newark 18, N. J.
Standard Heating Eqpt. Co., 1406 E. Fourth St., Waterloo, Iowa
Standard Railway Fusee Corp., Signal Flare Div., P. O. Box 30, Needham Heights 94, Mass.
Standard Register Co., The, Albany & Campbell, Dayton 1, Ohio
Standard Utilities Corp., 47 Stanton St., Newark 5, N. J.
Staples & Pfeiffer, 528 Bryant St., San Francisco 7, Calif.
Stedco Products, 247 Butler St., Kingston, Pa.
Stetco Steel Co., Michigan City, Ind.
Steel City Furnace Corp., Hoeveler & R.R. Sts., Springdale, Pa.
Steel Tank & Sheet Metal Fabricators, Inc., 1135 W. 36th St., Chicago 9, Ill.
Steel Products, Inc., 105 Water St., W. Haven, Conn.
Stefco Steel Co., Heating Eqpt. Div., P. O. Box 189, Michigan City, Ind.
Steinen Mfg. Co., 43 Bruen St., Newark 5, N. J.
Sterling, Inc., 3738 No. Holton St., Milwaukee 12, Wisc.
Sterling Radiator Co., Inc., 260 No. Elm St., Westfield, Mass.
Sterling Water Treatment Co., The, 1920 W. 77 St., Cleveland 2, Ohio
Stewart Oil Burner Co., 218 Franklin St., Hanover, Pa.
Stewart-Hall Chemical Corp., 550 S. Fulton Ave., Mt. Vernon, N. Y.
Stout & Sons, David, 7014 Manchester Blvd., St. Louis 17, Mo.
Stow Mfg. Co., 180 Shear St., Binghampton, N. Y.
Strong, Carlisle & Hammond Co., 1392 W. 3d St., Cleveland 13, Ohio
Struthers Wells Corp., Iron Works Div., Titusville, Pa.
Stueck, Inc., W. Whitney, Old Saybrook, Conn.
Sturtevant Div., Westinghouse Electric Corp., Boston, Mass.
Stutzman Oil Burner Co., 27 Albert Ave., Aldan P. O., Clifton Heights, Pa.
Sudbury Laboratory, Dutton Rd., S. Sudbury, Mass.
Sunbeam Oil Burner Mfg. Corp., 1455 Blondell Ave., Bronx 61, N. Y.
Sun-Ray Burner Mfg. Corp., 139-24 Queens Blvd., Jamaica, N. Y.
Sundstrand Eng. Co., 2421 Eleventh St., Rockford, Ill.
Sundstrand Machine Tool Co., Hydraulic Div., 2421 Eleventh St., Rockford, Ill.
Sunshine Chemical Co., Inc., John, 600 W. Lake St., Chicago 6, Ill.
Super Oil Heater Co., 942 New Britain Ave., Hartford, Conn.
Superior Combustion Industries, Inc., 1475 Broadway, New York 18, N. Y.
Superior Furnace & Mfg. Co., 322 Hamilton Ave., Plymouth, Mich.
Sure Heat Stove Co., Inc., Box 215, Plano, Tex.
Surface Combustion Corp., 400 Dublin Ave., Columbus 16, O.

Sussex Nozzle Co., 358 Sussex Ave., Morristown, N. J.
Swett Brothers, 78 Island Pond Rd., Springfield, Mass.
Swirling Oil Burner Mfg. Corp., 22-09 37th Ave., Long Island City 6, N. Y.
Syncromatic Corp., 1141 10th St., Watertown 9, Wisc.
Synchronous Flame, Inc., 327 So. LaSalle St., Chicago 4, Ill.
Syntron Co., 902 Lexington, Homer City, Pa.

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Taco Heaters, Inc., 137 South St., Providence, R. I.
Tal Bender, Inc., 417 No. Walter, Milwaukee 2, Wisc.
Tankit Co., 17 Shepard Ave., Newark, N. J.
Taylor Instrument Co., 95 Ames St., Rochester 1, N. Y.
Tecumseh Products Co., Tecumseh, Mich.
Teesdale Co., The R. S., 1809 Amhurst St., N.E., Grand Rapids 3, Mich.
Terre Haute Boiler Works Co., 1140 Crawford St., Terre Haute, Ind.
Thatcher Furnace Co., The, Centre St., Garwood, N. J.
Therm Gas Generator Co., Inc., 2105 Westlake Ave., Seattle 1, Wash.
Therma Products Co., Inc., 33 Bradston St., Boston 18, Mass.
Thermco Laboratories, Johnson Rd., Michigan City, Ind.
Thermo-Base Div., Gerwin Industries, 214 Spring St., Michigan City, Ind.
Thermobloe Div., Prat-Daniel Corp., 2 Meadow St., So. Norwalk, Conn.
Thermolok Mfg. Co., Inc., 541 Rogers Ave., Brooklyn 25, N. Y.
Thermo-Products, Inc., P. O. Box 147, North Judson, Ind.
Thrush & Co., H. A., W. 8th St. at N. Jefferson St., Peru, Ind.
Tilden Tool Mfg. Co., 6657 N. Clark, Chicago 26, Ill.
Timken Silent Automatic Div., Rockwell Spring & Axle Co., 209 E. Washington St., Jackson, Mich.
Titus, Inc., P. O. Box 598, Waterloo, Iowa
Titusville Iron Works Div., Struthers Wells Corp., So. Franklin St., Titusville, Pa.
Tjernlund Mfg. Co., The, 2140 Kasota Ave., St. Paul 14, Minn.
Todd Shipyards Corp., Combustion Eqpt. Div., 81-16 45th Ave., Elmhurst, N. Y.
Toledo Heater Co., 25 So. St. Clair St., Toledo 4, Ohio
Tool Industries, Inc., 15440 Telegraph Rd., Detroit 23, Mich.
Toridheet Div., Cleveland Steel Products Corp., 16025 Brookpark Rd., Cleveland 11, O.
Tork Clock Co., Inc., 1 Grove St., Mt. Vernon, N. Y.
Torrington Mfg. Co., 70 Franklin St., Torrington, Conn.
Tower Mfg. Corp., 222 Summer St., Boston, Mass.
Trageser Copper Works, Inc., 5000 Grand Ave., Maspeth 78, L. I., N. Y.
Trailmobile Co., 31st & Robertson Sts., Cincinnati, Ohio
Trane Co., The, Second & Cameron Ave., LaCrosse, Wisc.
Trent, Inc., 201-299 Leverington Ave., Philadelphia 27, Pa.
Trenton Heating Mfg. Co., 2834 Fifth St., Trenton, Mich.
Triad Products Corp., 5121 No. Clark St., Chicago 40, Ill.
Triangle Tank Div., Inc., 245 Russell St., Brooklyn 22, N. Y.
Triangle Tube & Specialty Co., Lucaston, RFD 2, Berlin, N. J.
Trico Baseboard Heating, 222 Lakeside Ave., Pompton Lakes, N. J.
Trion, Inc., 1000 Island Ave., McKees Rocks, Pa.
Tri-Saw Corp., 2207 Hanley Industrial Ct., St. Louis 17, Mo.
Triplex Heating Specialty Co., N. Grant St., Peru, Ind.
Truckstell Co., Union Commerce Bldg., Cleveland, Ohio
Tru-Heet Co., 532 Miller Ave., Trenton, N. J.
Tubing Appliance Co., Inc., 10321 Anza Ave., Los Angeles 45, Calif.
Tucker & Sons Mfg., 48th & Pacific Ave., Tacoma 8, Wash.
Tur-Bin Corp., 301 E. Lafayette Ave., Baltimore 2, Md.
Turbo-Ray, Inc., 31 Winthrop Ave., New Rochelle, N. Y.
Turb-O-Tube Furnace, Inc., 204 Rhode Island St., Buffalo 13, N. Y.
Tuttle & Bailey, Corbin Ave., New Britain, Conn.
Tuthill Pump Co., 939 E. 95th St., Chicago 19, Ill.
XXth Century Heating & Ventilating Co., 96 Ira Ave., Akron 1, Ohio
Twin Control Burner Mfg. Co., 3240 Barker Ave., New York 67, N. Y.
Typhoon Air Conditioning Co., Inc., 794 Union St., Brooklyn 15, N. Y.

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Ultra Metal Utilities Corp., 27-07 Astoria Blvd., Long Island City 2, N. Y.
Unifilter Co., 29845 W. 13-Mi. Rd., Farmington, Mich.
Union Asbestos and Rubber Co., 322 S. Michigan Ave., Chicago, Ill.
Union Electric & Mfg. Co., 1057 Summit Ave., Jersey City, N. J.
Union Spring & Mfg. Co., 1057 Summit Ave., Jersey City, N. J.
Unique Art Mfg. Co., Inc., 200 Waverly Ave., Newark 8, N. J.
U. S. Air Conditioning Corp., Como Ave., S.E., at 33d St., Minneapolis 14, Minn.
U. S. Machine Div., Stewart-Warner Corp., 320 No. "C" St., Lebanon, Ind.
U. S. Petroleum Co., 104 Lakeview Ave., Clifton, N. J.
U. S. Radiator Corp., 439 Penobscot Bldg., Detroit 26, Mich.
U. S. Register Co., 344 E. Burnham St., Battle Creek, Mich.
U. S. Rubber Co., 1230 Ave. of the Americas, New York 20, N. Y.
United Stove Co., 800 Lowell St., Ypsilanti, Mich.
Universal Air Filter Corp., 332 W. Michigan St., Duluth 2, Minn.
Universal Brass Co., 855 Kearny Ave., Arlington, N. J.
Universal Electric Co., 300 E. Main, Owosso, Mich.
Universal Valve Co., Box 444, Elizabeth 4, N. J.
Utility Appliance Corp., 4851 So. Alameda St., Los Angeles 58, Calif.
Utility Fan Corp., 911 E. 59 St., Los Angeles 1, Calif.
Utica Radiator Corp., 2201 Dwyer Ave., Utica, N. Y.
Devereux Block, Utica 2, N. Y.

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V&E Products, Liberty St., Schuylkill Haven, Pa.
Volcano Burner Corp., 3612 E. Tremont Ave., New York, N. Y.
Valley Forge Metals Co., Fifth & Mitchell Sts., Lansdale, Pa.
Van-Packer Corp., 209 So. LaSalle St., Chicago, Ill.
Vapor Heating Corp., 4501 W. 16th St., Chicago 23, Ill.
Vapor Recovery Systems Co., 2820 N. Alemeda St., Compton, Calif.
Vapofier Corp., 250 W. Wacher Dr., Chicago 4, Ill.
Vectaire Mfg. Co., 251 Howard St., Melrose, Mass.
Vent Fabrics, Inc., 640 Kedzie Ave., Chicago, Ill.
Venturi Chimney Cap Co., 3641-R Fulton Rd., Cleveland 9, Ohio
Victor Oil Burner Mfg. Co., 250 Pleasant St., Hartford, Conn.
Victory Eng. Corp., Springfield Rd., Union, N. J.
Viking Air Conditioning Division, The Nat'l Radiator Co., 5601 Walworth Ave., Cleveland 2, Ohio
Viking Mfg. Co., 1747 Chester Ave., Cleveland 14, Ohio
Viking Oil Co., 2482 W. Capitol Dr., Milwaukee, Wisc.
Viking Pump Co., Fourth & McCann Sts., Cedar Falls, Iowa
Volcano Burner Corp., 3612 E. Tremont Ave., New York 61, N. Y.
Volu-Trol Co., Highway 61 & Kohmnan St., St. Paul 9, Minn.
Vulcan Electric Co., 88 Holten St., Danvers, Mass.
Vulcan Radiator Co., 26 Francis Ave., Hartford 6, Conn.

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Walker Mfg. & Sales Corp., 1171-17 Penn St., St. Joseph 28, Mo.
Walsh Refractories Corp., 101 Ferry St., St. Louis 7, Mo.
Waltham Oil Burner Co., 1214 Bennington St., E. Boston, Mass.
Walton Laboratories, Inc., 1186 Grove St., Irvington, N. J.
Warner Lewis Co., 817 No. Lewis Pl., P. O. Box 3096, Tulsa 8, Okla.
Warren Webster & Co., Seventeenth & Federal Sts., Camden 5, N. J.
Washington Stove Works, 3402 Smith Ave., Everett, Wash.
Wassell Organization, Inc., Westport, Conn.
Watchman Mfr. Co., The, 939 W. Beach St., Long Beach, N. Y.
Water Tube Boiler & Tank Co., 140 W. Root St., Chicago 9, Ill.
Waterfilm Boilers, Inc., 36-40 New York Ave., Jersey City 7, N. J.
Waterman-Waterbury Co., 1121 Jackson St., N.E., Minneapolis 13, Minn.
Watts Regulator Co., Embankment Rd., Lawrence, Mass.
Wayne Brass Co., Inc., 230 W. Main St., Ft. Wayne, Ind.
Wayne Home Eqpt. Co., 801 Glasgow Ave., Ft. Wayne, Ind.
Weatherall Engineers, Inc., 387 Charles St., Providence 4, R. I.
Weatherhead Co., The, 300 E. 131st St., Cleveland 8, Ohio
Webb & Son Co., Elisha, 136 S. Front St., Philadelphia 6, Pa.
Webb Machine & Tool Co., R. D. 1, Imperial, Pa.
Webster Electric Co., 1900 Clark St., Racine, Wisc.
Webster Eng. Co., 115 So. Frisco St., P. O. Box 2168, Tulsa, Okla.
Weil-McLain Co., Michigan City, Ind.
Wells Mfg. Co., 220 9th St., San Francisco 3, Calif.
Werco Products, 2011-13 S. Cicero Ave., Chicago 50, Ill.
Wescott-Alexander, Inc., 42 Park Ave., Madison, N. J.

West Coast Quiet Heet, Inc., 1530 N.E. Grand Ave., Portland, Ore.
Westchester Home Eqpt. Co., 687 Morris Ave., Bronx, N. Y.
Western Blower Co., 1800 Airport Way, Seattle 4, Wash.
Western Stove Lining Works, W. Love St., Mexico, Mo.
Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa.
Westinghouse Electric Corp., Industrial Heating Div., 180 Mercer St., Meadville, Pa.
Westinghouse Electric Corp., Sturtevant Div., 105 Readville St., Boston 36, Mass.
Westinghouse Electric Corp., Small Motor Div., Lima, Ohio.
Weston Electrical Instrument Corp., 641 Frelinghuysen Ave., Newark 15, N. J.
Wheaton Brass Works, Springfield Rd., Union, N. J.
Wheelco Instr. Div., Barber-Colman Co., 1300 Rock St., Rockford, Ill.
White Fuel Corp., 900 E. First St., So. Boston, Mass.
White Motor Co., 842 E. 79th St., Cleveland 1, Ohio
White-Rodgers Electric Co., 1209 Cass Ave., St. Louis 6, Mo.
Whitlam Mfg. Co., J. C., Box 71, Wadsworth, Ohio
Whitney Mfg. Co., W. A., 636 Race St., Rockford, Ill.
Whitty Co., Inc., 86 Western Ave., Boston 34, Mass.
Wickes Boiler Co., 502 No. Water St., Saginaw, Mich.
Wiegand Co., Edwin L., 7762 Thomas Blvd., Pittsburgh 8, Pa.
Wigwam Flue Top Co., 325 Washington St., Abington, Mass.
Wilgus Mfg. Co., 1722 E. 16th St., Los Angeles 21, Calif.
Will-Burt Co., Orrville, Ohio
Williams Automatic, Inc., 29 Main St., White Plains, N. Y.
Williamson Heater Co., 3500 Madison Rd., Cincinnati 9, Ohio
Williams Bros. Boiler & Mfg. Co., 1057 Tenth Ave., S.E., Minneapolis, Minn.
Williams Bros & Miller, Inc., 619 W. Chicago Ave., E. Chicago, Ind.
Williams & Davis Boiler & Welding Co., Inc., 2527 Canton St., Dallas, Tex.
Williams Div., Eureka Williams Co., Henry Motor Co., Inc., 1201 E. Bell St., Bloomington, Ill.
Williamson Heater Co., 3500 Madison Rd., Cincinnati 9, Ohio
Wilson & Co., Inc., 4200 So. Ashland Ave., Chicago 9, Ill.
Wilson Stove & Mfg. Co., Inc., Box 187, Metropolis, Ill.
Windmaster Corp., Box 776, Columbus 8, Ohio
Windmaster Draft Control Co., Stop 26—Long Beach, Michigan City, Ind.
Wing Mfg. Co., L. J., 66 Vreeland Mills Rd., Linden, N. J.
Winston Co. of Mass., 33 Bradston St., Boston 18, Mass.
Winston Co., Inc., 359 Avon Ave., Newark 8, N. J.
Wisconsin Oil Burner Co., 2720 Emil St., Madison 5, Wisc.
Wise Furnace Co., The, So. 21st St., Newark, Ohio
Wishman Co., R. H., 204 W. Utica St., Buffalo 9, N. Y.
Wiss & Son Co., J., 11-45 Littleton Ave., Newark 7, N. J.
Wolverine Tube Div., Dalument & Hecla Consolidated Copper Co., 1850 Guardian Bldg., Detroit 26, Mich.
Wood Co., John, 100 Washington St., Conshohocken, Pa.
Wood Mfg. Co., A. R., Luverne, Minn.
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